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The Milroy Lectures
ON
INDUSTRIAL ANTHRAX.

Delivered before the Royal College of Physicians of London on March 7th, 9th, and 14th, 1905,

BY T. M. LEGGE, M.D. OXON., D.P.H. CANTAB.,
HIS MAJESTY'S MEDICAL INSPECTOR OF FACTORIES.

LECTURE I.

Delivered on March 7th.

MR. PRESIDENT AND GENTLEMEN,—Knowledge of the incidence of industrial anthrax in this country has been greatly increased as the result of Section 73 of the Factory and Workshops Act, 1901 (previously Section 29 of the Act of 1895), requiring every medical practitioner attending on, or called in to visit, a patient whom he believes to be suffering from anthrax contracted in a factory or workshop to notify the case forthwith to the chief inspector of factories at the Home Office. The notification of the practitioner usually states merely that the case is one of anthrax. Further data are obtained in every case by inquiry a few days later both by the certifying surgeon and by the inspector of factories. During the six years 1899 to 1904, both inclusive, there have been thus reported at least 261 cases of anthrax contracted in factories or workshops or so intimately connected with such conditions that I have not thought it wise to exclude them. I have commenced with the year 1899 because since then information has been obtained of the great majority of cases which have occurred. Between the years 1896, when the enactment first came into force, and 1898 cases were reported—13 in 1896, 23 in 1897, and 28 in 1898—but there is little doubt that owing to ignorance of the requirements of the section there was failure to notify some cases which occurred. Taking the figures as a whole they can be distributed in four main divisions.

TABLE I.

Industry.	Males.	Females.	Total.	Fatal.	Per cent.
Worsted and wool	70	18	88	23	26·1
Horsehair and bristles ...	53	17	70	17	24·3
Hides and skins	86	—	86	21	24·4
Other industries	15	2	17	6	35·3
—	224	37	261	67	25·6

Going more into detail as to industry the bulk of the cases in wool have occurred in the processes of wool-sorting, wool-combing, and spinning carried on as independent industries or as preliminary stages in the manufacture of carpets, blankets, and rugs, and of felt; in horsehair they have occurred principally in hair-combing for stuffing purposes and in brush-making; in the hide and skin industry, while the incidence has been mainly at the docks, in warehouses, and tan-yards, isolated cases have been noted in the making of leather articles. The cases included under other industries are interesting. This heading includes isolated cases among workers of horn and persons employed in rag-sorting, in unloading corn, in carrying sacks of potatoes, in a fruit warehouse, in the railway station, and in the manufacture of chemical manure. The total number of persons employed in wool, worsted, and shoddy in the United Kingdom in the year 1901 is stated to have been 259,909 (106,598 males and 153,311 females).[1] Of this large number, however, only 1171 (1164 males and seven females) are classed as being engaged in sorting, and 3093 (1882 males and 1211 females) in combing, the dangerous kinds of wool under the special rules for wool-sorting and wool-combing (Van mohair, mohair, alpaca, pelitan, cashmere, Persian and camel hair), making a total of 4264 persons incurring special risk. At least 64 of the cases occurred among persons employed in the sorting and combing processes of the scheduled dangerous classes of wool. I have excluded from this number cases of outside infection conveyed to others by workers manipulating these wools and cases among spinners and weavers, even when these occurred in factories where dangerous wools were manipulated and were possibly the result of infection from insufficient separation of one process from another. On the number (4264), therefore, exposed to risk, taking these 64 cases, the figure of attack is 1·3 per cent. or 0·21 per cent. per annum. In horsehair factories, in all processes, the total number employed in the year 1901 was 2206 (724 males and 1482 females). The number of cases of anthrax in horsehair factories was at least 40. I have excluded from this figure altogether the cases which occurred from the use of horsehair and bristles in brush factories. Estimated in the same way as for wool, the figure of risk in the horsehair industry is 1·8 per cent., or 0·3 per cent. per annum. The risk in horsehair factories generally, therefore, stated in this way shows itself to be greater than in wool, when the figures dealt with are limited to those manipulating the scheduled dangerous classes. For particular factories, both of wool and horsehair, a very much higher attack rate could be given.

Knowledge of the population of the workers throughout the kingdom is necessary to see whether incidence of anthrax follows closely the lines of relative density of population in the particular industry. This is brought out in the following table, where for each of the counties in England the numbers employed in wool, in horsehair, and in leather are inserted. The figures for horsehair do not include persons employed in brush-making. The number of these is 5365. So far as I have been able to ascertain, however, only three or four of the cases included under horsehair can be attributed to bristles. The figures as to persons employed are least satisfactory for the hide and skin industry. They include all the tan-yards but it is probable that only a very small number of those employed in docks or in wharves and warehouses, among whom incidence of anthrax is greatest, are included. Table II. shows the number of persons employed in: (1) wool, worsted, and shoddy factories; (2) horsehair factories; and (3) leather in the several counties of England; and the number of cases of anthrax in the six years 1899–1904. (The figures for (1) and (2) are those of 1900 and for (3) of 1898.)

In the whole of Scotland among 29,256 persons employed in wool three cases of anthrax were reported in the corresponding six years (two in Ayr and one in Lanark); among 794 employed in horsehair nine cases (all in Glasgow) were reported. No cases were reported among the 15,563 persons employed in leather. One case from manipulation of hides occurred in Swansea.

Incidence of anthrax on persons employed in wool is centred almost entirely round the Bradford district of the West Riding and in Worcestershire. No case at all has occurred in the woollen factories of the Stroud Valley in Gloucestershire, Wiltshire, Somerset, and Devon, representing a population of 7000; and again in the whole of Scotland, where nearly 30,000 are employed, only three cases have been reported. This is explained by the fact that, except in the two counties named, the nature of the manufacture does not involve the use of dangerous classes of wool in the raw state from Asia Minor and Persia to be described presently. In the cloth factories of the Stroud Valley and in Scotland colonial wool chiefly is manipulated. Distribution of the cases from manipulation of horsehair follows much more closely the population so engaged which suggests that the dangerous classes of hair from China, Russia, and Siberia are more generally used. Discrepancies in incidence of anthrax and number of persons employed in leather are to be observed similar to those noted in wool. The counties of Northampton, Somerset, Devon, Surrey, Stafford, Cheshire, West Riding of Yorkshire, and Lanarkshire show practically no cases, although the number of persons employed is fairly large. Anthrax in this industry is mainly confined to the ports of London and Liverpool.

The fatality of the reported cases (25·6 per cent.) is probably higher than would be expected by medical men having knowledge only of cases treated in hospital and less than that expected by the general lay public which believes it hardly possible for recovery from anthrax to take

[1] Supplement to the annual report of the Chief Inspector of Factories for the year 1902 (Cd 1979), dated 1904.

place. It seems, however, to be that which is to be anticipated of anthrax when all cases are included and when the type is mainly external. In Italy,[2] where anthrax is notifiable, in the 11 years 1880–1890 there is record of 24,052, of which 5812 proved fatal—24·1 per cent. In St. Denis and the department of the Seine,[3] between 1886 and 1893, among 123 cases there were 35 deaths—28·4 per cent. Of 91 cases in the horsehair industry in Germany 29 proved fatal—31·6 per cent. Wilhelm Koch[4] collected particulars

TABLE II.

—	Wool.		Horsehair.		Hides and skin.	
	No. employed.	No. of cases in six years.	No. employed.	No. of cases in six years.	No. employed.	No. of cases in six years.
ENGLAND.						
Bedford	—	—	—	—	107	—
Buckingham	—	—	—	—	28	—
Cambridge	—	—	—	—	189	—
Chester	280	—	—	—	824	—
Cornwall	57	—	—	—	92	—
Cumberland	396	—	—	—	390	—
Derby	754	—	—	—	437	—
Devon	1224	—	—	—	757	—
Dorset	—	—	—	—	35	—
Durham	809	—	—	—	100	—
Essex	35	—	—	—	123	—
Gloucester	3275	—	—	—	436	3
Hants	—	—	5	—	304	—
Hereford	5	—	—	—	123	—
Hertford	—	—	—	—	169	—
Huntingdon	—	—	—	—	—	—
Kent	—	—	—	—	657	—
Lancaster	11832	6	117	5	3052	23
Leicester	2869	—	—	—	214	3
Lincoln	—	—	—	—	425	—
London	227	1	214	30	3869	49
Middlesex	—	—	18	—	58	—
Monmouth	51	—	—	—	20	—
Norfolk	129	—	145	1	83	—
Northampton	—	—	—	—	1061	—
Northumberland	34	—	1	—	308	1
Notts	220	—	—	—	775	—
Oxford	945	—	—	—	—	—
Rutland	—	—	—	—	—	—
Salop	585	—	—	—	155	—
Somerset	1961	—	121	8	896	—
Stafford	32	—	—	—	898	1
Suffolk	—	—	469	2	321	—
Surrey	45	—	—	—	698	—
Sussex	12	—	—	—	126	—
Warwick	1101	—	—	—	346	—
Westmorland	498	—	—	—	46	—
Wilts	2140	—	—	1	252	3
Worcester	7263	12	122	4	689	—
York, East Riding	27	—	5	—	852	—
,, North Riding	4	—	—	—	101	—
,, West Riding	187204	66	195	10	4368	2
Total	224514	85	1412	61	25038	85

of 1473 published cases of malignant pustule in which the result was stated and of these 472 died—32 per cent. He adds, however, that these figures must relate to many cases where diagnosis was not made until late and treatment was therefore deferred. Of the 261 cases only six, all of which occurred in Bradford and were all fatal, appear to have been of the internal type. In 248 of the cases the situation of the pustule is stated and this may be grouped as follows:—

TABLE III.

Situation.	Number.	Per cent.
Head and face	108	43·5
Neck	103	41·5
Upper extremity	31	12·5
Lower extremity		1·2
Trunk	3	1·2

According to the occupation so in a measure does the situation of the pustule vary. The above list represents cases where infection arises mainly from dust. In the hide and skin industry, however, the pustule was situated on the neck in 49·4 per cent. of the cases as compared with 29·5 per cent. in wool—a difference to be accounted for perhaps by carrying of the hides on the shoulder. The arm, as might be expected, is much more frequently selected as the site of the lesion when the disease is contracted from work connected with the disposal of a carcass, although even then, apparently, it is less frequent than on the face. In 923 cases particulars of which were collected by W. Koch[5] this is brought out (Table IV).

TABLE IV.

Situation.	Number.	Per cent.
Head and face	447	48·4
Neck	45	4·8
Upper extremity	370	40·0
Lower extremity	26	2·8
Trunk	35	3·8

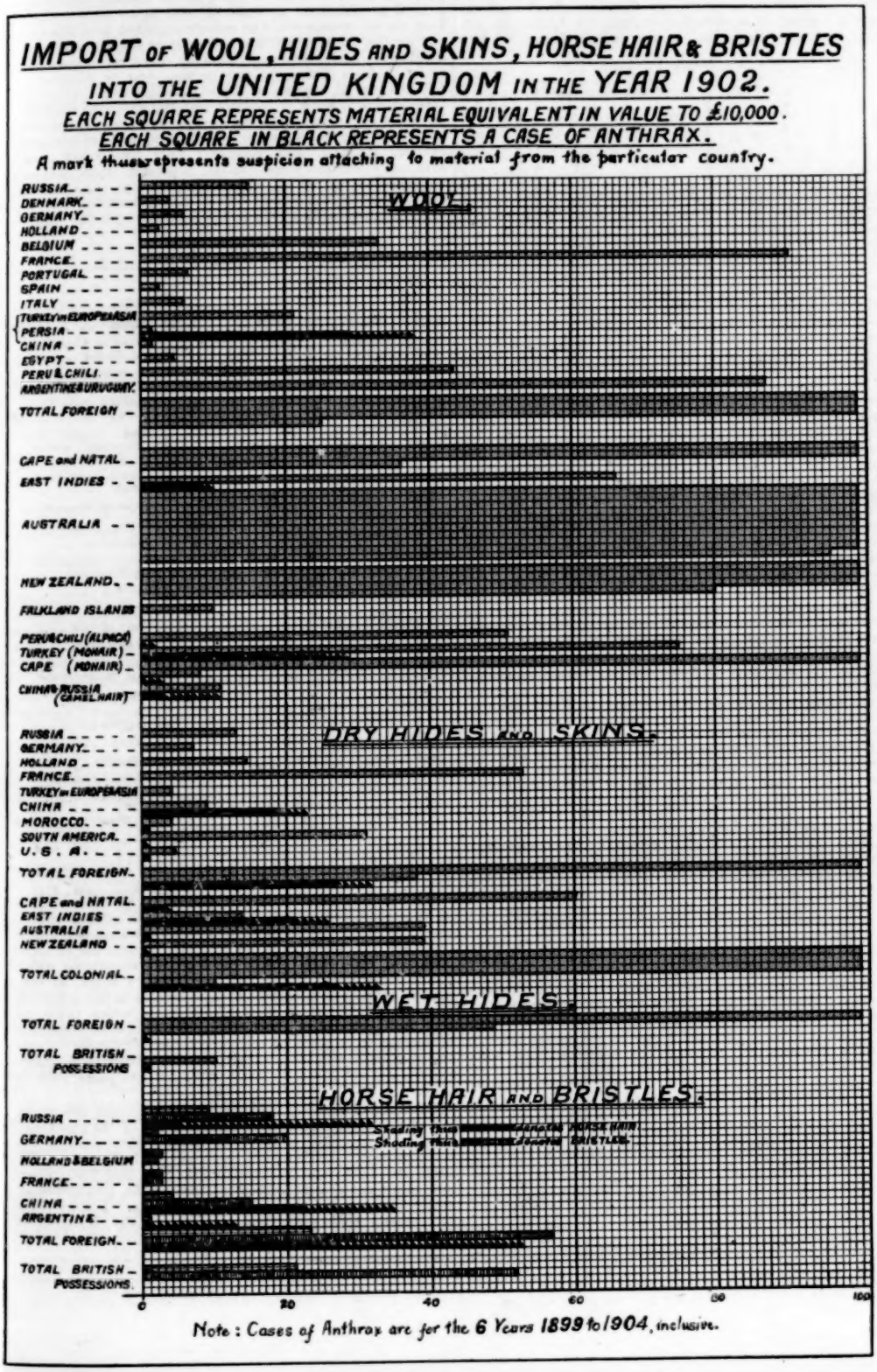
He further states that of the cases on the upper extremity the situation occurred most frequently on the fingers and the hand. In only one of the list I have prepared was the finger affected. In the anthrax districts of Thuringen, in 209 cases the pustules were situated 74 times on the face, 53 times on the arm, and 51 times on the hand and the fingers. The accident of situation is of considerable moment in determining the severity of the disease. Thus in the cases under review of 13 on the upper eyelid six were fatal—46 per cent.; of 103 on the neck, 31—30 per cent.; of 19 on the forehead, 2—10·5 per cent.; and of 31 on the upper extremity (including the shoulder), 4—12·9 per cent. Inability often to venture on an operation, absence frequently of the diagnostic sign of local necrosis, and the looseness of the cellular tissue account for the high fatality where the upper eyelid or the eyebrow is affected. And even in recovery from the local lesion in this situation extensive sloughing of the eyelid often results. Other figures,[6] based on 180 observations, give the mortality on the head and the face as 26·3 per cent., on the trunk as 22·7, on the neck as 18·5, on the upper extremity as 13·8, and on the lower extremity as 5·1.

The figures which I have given for this country exclude the cases which have occurred to the numerous class of persons who come into contact with animals infected with anthrax during life or have taken part in their slaughter and disposal of the carcass. Unfortunately, in no country can more than a guess be made of the number thus engaged who suffer. In Great Britain the annual returns of the causes of death published by the Registrar-General are of material help. Table V. shows the number of registered deaths from anthrax since 1882 and since 1899 the large share of them borne by those due to factory or workshop conditions.

In 1901 deaths not due to factory conditions were those of a butcher and a fireman in the merchant service; in 1902, of two farmers, a shepherd, and an auctioneer and valuer (the latter had assisted in dressing a dead carcass); and in 1903 of a grocer's assistant, a farm labourer (contracted from bone manure), a butcher, and a gamekeeper. The figures show a marked increase in the decade 1894–1903 (140 deaths) as compared with the previous one (90 cases). Comparison with other countries is not possible as I cannot find that deaths

[2] Sullo Stato presente della Sieroterapia Anticarbonchiosa, by A. Sclavo, Turin, 1903, p. 28.
[3] Maladies Professionnelles, Paris, 1903, p. 83.
[4] Milzbrand und Rauschbrand, 1886, p. 112.
[5] Loc. cit.
[6] Nassarow, quoted by Sclavo, loc. cit., p. 29.

FIG. 1.


IMPORT OF WOOL, HIDES AND SKINS, HORSE HAIR & BRISTLES
INTO THE UNITED KINGDOM IN THE YEAR 1902.
EACH SQUARE REPRESENTS MATERIAL EQUIVALENT IN VALUE TO £10,000.
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PORTUGAL
SPAIN
ITALY
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PERSIA
CHINA
EGYPT
PERU & CHILI
ARGENTINE & URUGUAY
TOTAL FOREIGN
CAPE and NATAL
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Shading thus [illegible] BRISTLES.
0
20
40
60
80
100
Note: Cases of Anthrax are for the 6 Years 1899 to 1904, inclusive.

from anthrax are tabulated separately in either France or Germany. Some information on the point, however, is given in the annual reports on diseases of animals in Germany[7] where it is stated (although the figures do not profess to be complete) that in the decade 1894–1903 901

TABLE V.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.	Deaths due to factory or workshop conditions.
1882	10	5	15	1893	6	1	7	—
1883	5	3	8	1894	7	3	10	—
1884	13	5	18	1895	11	2	13	—
1885	7	4	11	1896	8	1	9	—
1886	8	3	11	1897	16	2	18	—
1887	10	1	11	1898	16	2	18	—
1888	11	1	12	1899	16	5	21	17
1889	6	1	7	1900	10	—	10	7
1890	3	1	4	1901	11	1	12	10
1891	1	2	3	1902	12	1	13	9
1892	5	1	6	1903	15	1	16	12

cases of human anthrax occurred, of which 128 were fatal. In 442 of these only can the occupation of those attacked be made out, this number including 312 employed in disposing in one way or another of carcasses of animals which had died from the disease—51 farmers or farm labourers, 25 shepherds or cowherds, 26 horsehair workers, 9 tanners, 7 veterinary surgeons, 4 meat inspectors, 6 butchers, a gamekeeper, an estate agent, a shoemaker, and a person employed in a foreign lamb-skin store. In Austria of 250 cases treated by Graef[8] and two other surgeons nearly all were employed on the land.

With the exception of this country, in all other countries of the world probably anthrax in the human subject is derived much more from contact with the carcass of a dead animal than from the spores contained in the wool, horsehair, hides, and skins of animals imported from distant countries. It is important therefore to ascertain as nearly as can be done the country of origin of the material which conveys anthrax to the factory workers in Great Britain. The source of the suspected material so far as it can be shown is brought out in Table VI.

A mere statement of the source and origin of the infected material which gave rise to the cases in the last six years conveys little information that is surprising unless this is interpreted in the light of the amounts imported from the various countries. The diagram I have prepared[9] shows the value of the amounts of wool, of horsehair, and of hides and skins imported in 1902 in pounds sterling from every country exporting more than an amount equivalent to £10,000. The diagram relates solely to imports and regard has not been had to the very considerable quantities which are re-exported. In the case of wool this is nearly one half, but it would have been impossible for me to have prepared a table showing the amount of material from each country which was consumed in this. The figures show the values of the material shipped from the various ports in the different countries. (See Fig. 1.) There can be no doubt that the considerable amounts from France, Belgium, Holland, and Germany include material which, so far as the country of origin is concerned, ought to be added to that from Persia, Turkey, &c. While I have taken the value of the imports for one year only the number of cases of anthrax attributed to the material from the countries are those of six years. Notwithstanding these limitations to be put upon the diagram it is at once apparent that in the case of wool a small fraction of the total quantity imported has conveyed all the infection. No single case has with certainty been traced in the six years to wool from Australia and New Zealand which in the year 1902 amounted to 417,442,529 pounds, valued at £13,537,457.

[7] Jahresberichte über die Verbreitung von Thierseuchen im Deutschen Reiche, Arbeiten aus dem Kaiserlichen Gesundheitsamte.

[8] Wiener Klinische Rundschau, Band x., 1903.

[9] Based on the Annual Statement of Trade of the United Kingdom with Foreign Countries and British Possessions in 1902, vol. i.

On the other hand at least 30 cases with certainty, and possibly 40, have occurred from use of Persian wool valued in 1902 at £13,159. At least 21 cases again have occurred from use of mohair and Van mohair imported from European and Asiatic Turkey, the value of which in the same year was £746,818. In horsehair at least 22 cases are traceable to material from China, valued in the year in question at £40,758, or, if bristles be added, at £188,650, and several cases also to Russian or Siberian material valued at £266,497. In hides and skins imported in the wet condition (mainly from Italy and South America through the ports of Germany, France, Holland, and Belgium) only two cases could with any certainty be traced, although such material in 1902 was valued at £1,595,109. In dry hides, on the other hand, 19 cases were due to manipulation of material from China valued in 1902 at £87,989, and a similar number

TABLE VI.

Wool.		Horsehair.		Hides.	
Persian (Bagdad)	29	China	22	China	19
Persian or camel hair	7	Russia, Siberia, or China... ...	13	China or East Indian, &c.	5
Persian or alpaca...	1	Siberia or Russia	5	Madagascar, East India, or China...	1
Mohair or Persian	1	South America or Siberia or Russia	13	Bombay, East Indian	20
Mohair	13	All kinds except Chinese	5	East Indian or Russian green hides	1
Van mohair	8	Indefinite	12	Cawnpore goat skins	1
Mohair or cashmere or camel hair	2	Total	70	Cape or Singapore	1
Cape mohair or Turkey mohair...	3			Cape...	3
Mohair or alpaca ...	1			Australian	1
Pelitan or mohair	1			South American or New Zealand ...	1
East Indian... ...	8			Arabian	1
Native, Colonial, or East Indian... ...	2			Morocco	1
Camel hair	3			West African... ...	2
Finished tops ...	1			Buffalo hides... ...	1
Probably Persian or East Indian ...	2			Madras and Bombay tanned hides	1
Indefinite	6			Tanned sheep skins	2
Total	88			Tanned boot leather	1
				Native	1
				Columbia	1
				Persian goat skins	3
				Indefinite	19
				Total	86

from Bombay and East Indian raw dry hides valued at £265,422.

Having thus shown the part played by the introduction of raw foreign material in the production of anthrax in man I turn to the information available which will throw light on the occurrence of anthrax in animals in these countries, especially in Asia, and on the conditions which favour its spread. These will be found, I think, in conditions of soil, of climate, and equally also in the primitive nomadic life of many of the inhabitants which takes no thought of rational preventive measures. Anthrax in animals is common in all parts of the world. Official figures[10] showing the gross number attacked in such countries as make returns are set down in Table VII. for the years 1901 to 1903.

In France, Hungary, and Sweden the returns are made, not of the number of animals attacked, but of the number of infected farms, and of those in France there were in the three years 416, 395, and 491 respectively; in Hungary 1974, 2158, and 2754; and in Sweden 224, 218, and 179. From one other country in Asia statistics of the prevalence of cattle diseases are given—namely, in India. The numbers of animals that died from anthrax in the North-West Provinces and Oude, North and South Punjab, the Bombay

[10] The figures, except those for Great Britain, are taken from Jahresberichte über die Verbreitung von Thierseuchen.

TABLE VII.

Country.	Cases of anthrax in animals. 1903.	1902.	1901.
Great Britain	1,143	1,032	971
England	792	705	674
Scotland	324	307	281
Wales	27	19	16
Germany	4,628	4,852	5,843
Netherlands	409	356	261
Belgium	512	512	541
Norway	595	537	467
Denmark	15	155	69
Switzerland	237	300	210
Italy	3,959	6,099	2,604
Roumania...	452	104	192
Bosnia and Herzegovina	241	166	273
European Russia and the Caucasus	47,300	42,423	54,731
Asiatic Russia...	4,200	6,802	6,886

Presidency, Bengal, Burma, Sind, Rajputana, Madras, and Berar are stated to be as follows :—[11]

TABLE VIII.

—	1899	1900	1901	1902	1903
All animal diseases	343,906	304,931	249,691	228,606	258,419
Anthrax	33,667	36,070	25,997	28,081	30,715

Although these figures may be, and probably are, inaccurate the statement remains in the report that rinderpest and anthrax are the "two most prevalent fatal diseases of Indian cattle." There is an inclination always to doubt the accuracy of statistics on anthrax inasmuch as all sudden deaths of animals which cannot be otherwise accounted for are often ascribed to it. Still, the figures which have been given are separated from the other recognised animal diseases such as rinderpest, cattle plague, foot-and-mouth disease, &c. In the recent Tibetan mission[12] it is stated that anthrax chiefly reduced the number of yaks which accompanied the force from 3000 to 1450. Too much stress must not be laid on the greater number attacked in one country over another in the absence of knowledge of the number of animals in each country. Table IX. shows the actual incidence of the disease per 10,000 of each class of animal. I can only give the figures for Germany and Great Britain.

[11] Annual Administration Report of Civil Veterinary Department in India.

[12] Report on the Working of the Army Veterinary Department with the Sikkim Tibet Mission, by Lieutenant-Colonel R. Moore, Simla, 1904.

TABLE IX.

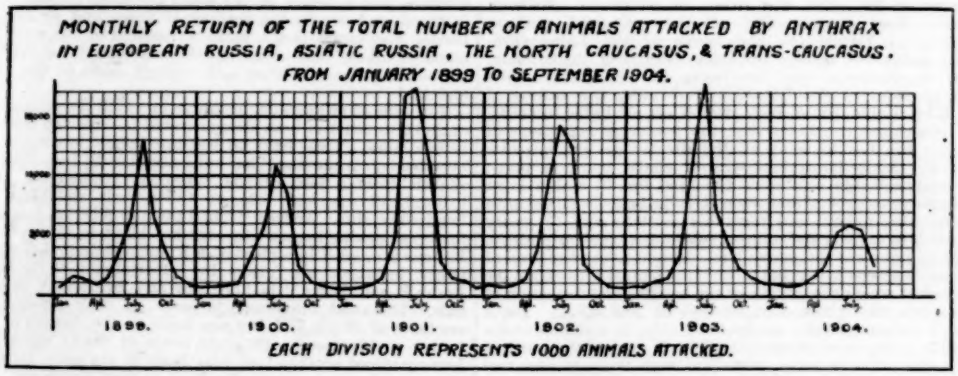
Country.	Year.	Horses.	Cattle.	Sheep.	Goats.	Swine.
Germany ...	1903	0·36	2·11	0·35	0·03	0·08
Great Britain	1903	Not stated.	1·2	0·02	Not stated.	0·8

Although this is the average for the whole of the countries named, incidence in particular districts is far greater. Thus among cattle in the district of Düsseldorf it was 11·15 per 10,000, in Zwickau in Saxony 8·8, in Chemnitz (also in Saxony) 8·5, and in Anhalt 6·6. In this country in 1903 in Haddington it was 15·4 per 10,000 and in Aberdeenshire 4·9. Interest to us centres round the large figures obtained from Russia. In the 59 districts in European Russia from which returns were received in the month of August, 1904, cases of anthrax were only absent from three of them and in the 13 districts of Asiatic Russia they were absent from four. The importance of the figures in establishing the law which I believe underlies the whole question of the incidence of anthrax among animals in Asia and in man in this country is brought out by distributing the cases month by month over a period of years as has been done in the following curve. (See Fig. 2.)

Until March of each year there is practically no change in the incidence; there is then an enormous development of the disease, reaching its maximum in July and August, followed by a rapid fall in September and October; in November and December the same figure as that for the early months of the year is reached. This same curve of seasonal influence is apparent, though less marked, in the figures showing incidence of anthrax in Germany since 1885. In contrast to this figures taken quarterly in Great Britain show least incidence of anthrax in the third quarter, July, August, and September. Thus, of a total of 4250 outbreaks in the six years 1899–1904 there occurred in the first quarter 1114, in the second 1166, in the third 850, and in the fourth 1120. As is to be expected in countries where incidence of anthrax is greatest in the hot summer months and where industrial conditions are not predominant incidence on man is subject to the same law and is dependent on direct transmission from animals to man. Thus in Italy of 11,102 cases of malignant pustule reported in Italy in the five years 1892–96 there occurred in the first quarter of the year 1482 cases, in the second 1398, in the third 5286, and in the fourth 2936.

It is interesting to see whether in this country there is any corresponding fluctuation of the disease in man such as occurs in animals in Asia (for what holds good of seasonal influence in European and Asiatic Russia may be assumed to be the same in all countries in Asia exposed to like high summer temperatures). Any close relation between the two must be interfered with, firstly, because factory work at home is continuous all the year round, and secondly, material is stored for varying periods both in Asia and in this country and such as is collected in the summer months in Asia will not necessarily be handled at a corresponding later date here in the factory. The fact that the

FIG. 2.



average number of cases in each of the four months—July to October—is 15·1 and for each of the eight other months is 25·7 points slightly to reflection of the lessened incidence among animals in the winter months in Asia.

The simplest explanation of the facts stated is seasonal variation in temperature and all that this means in changes in the soil and vegetation. We know of the anthrax bacillus that its greatest development takes place at a temperature of 35° C., that multiplication is arrested below 12° C. and above 45° C., and that cooling below the freezing point does not kill it. Spores are most readily produced at a temperature of 32° C. Below 18° C. and above 42° C. the capacity for sporulation ceases. In studying the possible saprophytic growth of the bacillus Koch[13] found that excellent media for its growth could be obtained from emulsions of seeds rich in starch, such as barley, wheat, peas, and grass, and from the fresh juice of potatoes, turnips, &c. Living plant cells do not form a suitable soil but water in which hay and straw have been allowed to decay, if neutralised or made slightly alkaline, became a suitable medium. Possibly the presence of chalk in the soil by neutralising the acids produced in decay may help to render suitable soils otherwise unfitted for the bacillus to develop in.

The characteristic of anthrax specially to infect certain districts has been known for centuries. Long before the bacillus anthracis was discovered as the *causa causans* the epidemiology of anthrax had been studied in many different countries by Hewsinger,[14] especially in Siberia and Germany, with results which led him to the conclusion that the conditions of climate and soil which favoured the development of anthrax in animals were the same as those which favoured the development of malaria in man. In Siberia it was most commonly met with on the salt grass steppes, in the river valleys, and round the bitter lakes. He had noted that its occurrence never failed on land rich in organic matter and liable to putrefaction, such as is found in the impervious peaty moorland soils with tendency to the formation of pools and marshes. The existence of brackish water and generally of water containing alkaline salts which favours decomposition favoured also the development of anthrax. He observed, too, that the use as fodder of the grass or hay of particular meadows or districts was believed to be often the cause of outbreaks. Wilhelm Koch,[15] from consideration of the principal anthrax districts in France (on the banks of the Loire, Oise, Aisne, Saône, the marshy low-lying country of the Gironde, &c.), in Germany (on the banks of the Danube, the swampy sides of the Bavarian Highlands, the valleys of the Elbe, Mulde, Saale, Bode (which are all liable to flood), and elsewhere, concludes that the favouring conditions of soil for the development of the disease as an epizootic are: (1) fairly impervious soils of chalk, marl, or clay; (2) sandy soil, but only when the sand lies in a thin layer on impervious ground and when it is intimately mixed with decomposing animal and vegetable matter; and (3) peaty soils rich in organic and mineral substances, such as prairies, steppes, and moor and marsh land. Height above the level of the sea matters little, but a definite temperature must be reached at which the growth of the bacillus and formation of spores can take place—i.e., between 18° and 40° C. For a typical anthrax district are required only, in addition to the bacillus, a degree of moisture in the soil greater than that of the surrounding country, periodical high temperatures, and profuse vegetation. The moisture must not be so great as to constitute a bog, because the bacillus will not multiply in land thus saturated. As Billings[16] expresses it, "Places liable to be flooded and drying out to a considerable degree in summer and often exposed to the full action of the summer's sun" are those which describe the anthrax district. In America he describes some of the most marked centres as "cups" in high prairie lands, which retain the spring rain but tend to dry out in the summer. The flooding of low-lying lands, followed by drying from great warmth, make certain parts of the valley of the Mississippi markedly anthrax districts. There during the spring and summer of 1895 of a total of 103,507 horses, cattle, sheep, and pigs 6655 were attacked. In the Bavarian Alps in Switzerland Billings further says: "The people know almost to a day how long they dare let cattle graze on the anthrax districts before they must remove them." Factors which must not be left out of consideration, as they form important links in the chain of the creation of anthrax districts, are the insect bird and animal life and the occurrence of dust storms. Marchoux and Salimbeni[17] have shown, for example, the part played by vultures in South America in the spread of anthrax, first by observing them devour the carcasses of animals which had died from the disease and subsequently finding the bacilli in the excreta.

If we consider for a moment the conditions under which the sheep and animals are reared in Asia, especially in Central Asia, the likelihood for occurrence of anthrax among them is apparent. The central plateau of Asia Minor, the home of the Angora goat, is characterised by a climate of severe winter followed by a sultry summer. A prominent feature of this plateau is the existence of numerous fresh and salt water lakes, such as Lake Van, the brackish waters of which have no outlet. Wool is grown in all parts but the quantity produced is dependent on the character and modes of life of the inhabitants. Most is exported from Mesopotamia, where the nomadic inhabitants have no other occupation than to take care of very numerous flocks of sheep migrating with them according to the climate and foraging conditions. These districts are the warmest in Asia Minor and the reason why the wool from the districts of Bagdad and Bassorah is considered of such fine quality is attributed to the fact that the flocks, owing to the mild climate, can pass the winter outside, whereas in the northern mountainous regions the sheep have to be kept under peculiar roofs which are always inadequate to cover the animals which often lie in dirt. Still, the wool from the plains, though of finer quality, contains much more dust than that from the north. Even among the principal family of sheep inhabiting Mesopotamia the character of the wool differs according to the regions whence it comes and various names such as Karadi, Awassi, Mendelli, and Kerkouk are assigned to the qualities. A vast lacustrine region dotted over with lakes or tarns, many of them brackish and with no outlet, or strewn with them like beads on a string, best describes huge districts in Persia, Tibet, Kurdistan, the Kirghiz Steppes, Mongolia, and Northern China, and it is throughout these districts that varieties of the same fat-tailed Persian sheep is found and where the tending of them and of camels, horses, and cattle is the main occupation of the primitive nomadic tribes. Innumerable wild boars haunt the thickets surrounding the salt lakes and swampy delta of the Oxus and Aral.

The number of recorded instances in which the presence of anthrax bacilli has been demonstrated in imported material is not large. This must be because search has not often been made. Andrewes[18] has cultivated bacilli from the dust shaken from a few strands taken at random out of a hydraulically packed bale of China hair weighing five hundredweights. Andrew[19] found them in Siberian hair used for brushmaking in an asylum for the blind in Glasgow and Balfour Stewart[20] in a piece of a Kurachi hide in Liverpool. Other instances are given by Silberschmidt,[21] Gruber,[22] Frank,[23] and Berka[24] in horsehair and by Heim[25] in goat hair. The most important, however, of such experiments are those of Webb and Duncan made at the factory of the former in Worcester. Of eight cases of China mane hair four contained anthrax; of four bales of the same material all were infected, as were also both of two samples of dust taken from large bulk quantities. From these experiments they draw the conclusion that all bales of China mane hair must be regarded as infected. Whether further development of bacilli occurs inside a bale after it has been packed has never been determined.

If then the conditions of soil, temperature, moisture, and decomposing vegetable matter play so prominent a part in the development of outbreaks of anthrax among animals it becomes unnecessary to insist that the contagium must invariably be conveyed directly from animal to animal and from an animal that has died from the disease to man.

[13] Mittheilungen aus dem Kaiserlichen Gesundheitsamte, Band i., p. 77, 1881.
[14] Die Milzbrand-Krankheiten der Thiere und des Menschen, Erlangen, 1850.
[15] Loc. cit., p. 91, et seq.
[16] Twentieth Century Practice of Medicine, Article, Anthrax, p. 422.
[17] Annales de l'Institut Pasteur, 1903, p. 564.
[18] Annual Report of Chief Inspector of Factories, 1899, p. 263.
[19] Ibid., 1900, p. 471.
[20] Ibid., 1901, p. 239.
[21] Zeitschrift für Hygiene, vol. xx., p. 455.
[22] Oesterreichisches Sanitätswesen, 1898, p. 6.
[23] Münchener Medicinische Wochenschrift, 1899, No. 9.
[24] Wiener Klinische Wochenschrift, 1904, No. 13.
[25] Arbeiten aus dem Kaiserlichen Gesundheitsamte, 1901, vol. xviii.

Dirt and sand adhering to the fleeces of healthy Bagdad sheep and Angora goats may contain spores picked up in anthrax districts. In many outbreaks from manipulation of wool, horsehair, and hides no evidence of a fallen fleece or of damaged material is forthcoming. This view is supported by the fact, well known in the trade, that mane hair is considered much more likely to be infected than tail hair inasmuch as the mane hair comes most in contact with the earth. It explains also most readily the remarkable conclusion of Mr. Webb that it would be unsafe to assume that a single bale of horsehair from China was free from risk. The conditions under which animals are herded together in winter "under roofs always inadequate to cover the numerous animals," as is the custom in Kurdistan,[26] or the shelter given to the sheep in caves by the Bedouins in the vilayet of Aleppo might be expected to be much more productive of anthrax once a case occurred than the conditions of soil and temperature described. There is, however, no evidence pointing in this direction.

Several outbreaks of anthrax in animals have been directly traced to spores which have escaped from factories in which raw animal products are dealt with either through pollution of streams or through refuse dust used as manure on fields. Sometimes, however, infection is even more direct. Thus two horses at grass in a field on to which dust from Persian wool used in the manufacture of blankets was blown died from the disease in 1901 in Yorkshire. In a series of outbreaks near Zürich[27] eight out of 22 animals were infected by dust blown from the chimney of a horsehair factory and at least seven other cases were due in one way or another to conditions in this factory. Almost the first recorded outbreak of splenic apoplexy in cattle,[28] as the disease was then called, occurred in the valley of the Yeo in Somerset and the existence of a considerable glove industry at Yeovil suggests that the outbreak had relationship with factory conditions. I mention this outbreak because recently Houston[29] has demonstrated the presence of anthrax (1) in the general effluent from the final catchpit in a hide factory in Yeovil; (2) in the septic tank liquor, the sludge, and the washings of coke from primary and secondary coke beds; and (3) in mud from the banks of the river Yeo and Yeo brook. That the spores of anthrax would, he says, "be swept from the banks in time of flood and carried when present in the mud or river bank down the river to be spread over low-lying land bordering the river hardly admits of any doubt." He guards himself against magnifying the danger thus apparent by saying that "flood water, 'while widening the potentially infective anthrax area,' might affect so wide a separation of the individual spores of anthrax one from the other as to largely remove the element of danger." The fact that there is no increased incidence of anthrax in the hottest season of the year in this country points to the absence of the peculiar and special conditions of temperature and soil which are necessary for the germination of the spores into bacilli and further multiplication of the latter.

On the corporation sewage farm at Kidderminster since 1897, where incidence on the workers from the use of Persian wool during the same period had been high, there have been 11 outbreaks. An outbreak on the sewage farm at Market Harborough in October, 1904, synchronised with the occurrence of three cases of malignant pustule in men employed at a tannery where previously no case had been known to occur. Illustrative outbreaks of a similar nature have been described by Mr. J. Spear,[30] the one traced to washings of Van mohair, manipulation of which had given rise also to cases of malignant pustule in man, and from the refuse sludge from a tannery in London which was used on the farm of the occupier of the factory. Similar outbreaks are reported from Germany[31] and the United States. Thus, in 1901 15 cattle, and in 1900 23 cattle, were believed to have contracted the disease in Marbach on the Neckar by eating grass infected by the water of a stream used in washing foreign hides. At Kirchhain in Hesse-Nassau, an important tanning centre, in 1901 and previous years several outbreaks in animals had been traced to the use of hay from meadows manured with the hair and refuse from tanyards. In 1899 on the Black River, Wisconsin,[32] the distribution of the cases along the river bank for a distance of ten miles below a tannery receiving hides from South America and China indicated the river water as the carrier of the virus. The influence of tanneries in spreading anthrax among the operatives and cattle on pastures watered by streams carrying off the refuse from them was made the subject of inquiry in Pennsylvania during 1897.[33] The deaths of 12 men and 60 head of cattle in that year were attributed to the manipulation of Chinese dry hides in the tanneries of that State. While in some cases, therefore, the association of outbreaks of anthrax in animals with factory and workshop conditions is clear, the evidence when closely examined in this country fails to show that incidence of outbreaks of anthrax in cattle is greatest in counties where industries connected with wool or with raw animal products are mostly carried on. Elsewhere[34] I have shown that the number of outbreaks and the number of cattle attacked in each county worked out as a proportion on the number of cattle in each of the counties over a period of five years, negatives so far as can be done by this means, any close association. Indeed, incidence on animals appears to be greatest in counties where danger from factory conditions appears most remote, as, for example, in Cornwall, Westmorland, Northumberland, Hertford, Aberdeen, Banff, Elgin, and Haddington. Incidence of anthrax on animals is twice as great in Scotland as it is in England, yet incidence on the human subject from wool is negligible in Scotland as compared with England. No doubt the direct influence of a particular factory in causing anthrax in animals operates over an extremely limited area, but the use which it is well known is made of refuse dust from wool and horsehair factories as manure is an unknown quantity and may be the cause of many outbreaks the origin of which cannot be traced. Most cases are rightly attributed to the consumption by cattle of infected fodder either from direct grazing on fields where previously cattle had died from the disease, or from grass which had been cut from places where animals have died, or where the carcasses have been buried at an insufficient depth.

As showing the probable relation of the bacillus to the soil I would cite as instructive the tracing of outbreaks in 1903 and 1902[35] to the feeding of cattle on turnips grown near the place where an animal suffering from anthrax had been slaughtered, similar feeding on turnips in the digging up of which dead bones were exposed, and of the death of six oxen out of a shed containing 100 animals from consumption of raw potato skins to which the spores of anthrax must have been attached, as only the six oxen thus fed succumbed. But recital of such cases does not explain sufficiently all the outbreaks in animals, particularly those erratic instances occurring on farms hitherto free from the disease. To account for these McFadyean[36] suggests two possible sources: (1) artificial manure and (2) imported feeding stuffs. Against the view that artificial manure can be the cause he states "the erratic way in which outbreaks occur throughout the country apparently quite unconnected with the more or less liberal employment of artificial manure." In analysing 39 consecutive outbreaks, in 29 of which there was no previous history of anthrax on the farm, he found that in 26 of the 39 outbreaks the animals were receiving a diet into which artificial food in different forms entered. He says: "The circumstances connected with the series of outbreaks deepen the suspicion which already existed that a considerable number of cases of the disease in this country have an extraneous source of infection and that the vehicle of infection is not infrequently some artificial food stuff of which the raw material is derived from a foreign country." In one outbreak amongst cattle which caused the death of six valuable shorthorns he isolated the bacillus from linseed cake and in this instance as soon as the linseed meal was stopped the outbreak ceased. In another outbreak among horses in London similarly the bacillus was isolated from the oats. Of the outbreaks in Germany in 1903 Russian bran was

[26] S. P. Sweeney in Wool and Manufacture of Wool, by W. C. Ford, Washington, 1894.
[27] W. Silberschmidt: Zeitschrift für Hygiene, vol. xx., p. 455.
[28] Duguid: Transactions of the Seventh International Congress of Hygiene, vol. iii., p. 213.
[29] A. C. Houston: Anthrax in Yeovil Sewage, Second Report of Commission on Sewage Disposal, 1902, p. 31.
[30] Tenth and Twelfth Reports of the Medical Officer of the Local Government Board, 1881 and 1883.
[31] Jahresberichte der Thierseuchen im Deutschen Reiche.
[32] Wisconsin Station Report, H. L. Russell, 1900, pp. 171–84.
[33] Influence of Tanneries in Spreading Anthrax, by M. P. Ravenal, M.D. Paper reprinted in the Veterinary Journal, 1899, vol. xlix., p. 23.
[34] Transactions of the Epidemiological Society, vol. xxiii., p. 181.
[35] Jahresberichte von Thierseuchen.
[36] Extraneous Sources of Infection in Outbreaks of Anthrax. Journal of Comparative Pathology and Therapeutics, vol. xv., p. 346.

believed to have been the cause in several instances. In 1902 fodder consisting of bran, barley or hay from Russia is cited as having been believed to be the cause of the outbreaks in seven instances. In 1901, in addition to fodder imported from Russia, reference is made to two farms believed to have been infected from fodder grown in the tropics. This view makes intelligible the source of infection in the case of a corndealer, a person unloading corn in a warehouse, and a person carrying sacks of potatoes mentioned at the beginning of this lecture. If the soil under certain conditions is recognised as a suitable medium for the growth of the bacillus it is no longer necessary always to seek for the material cause in raw animal products alone.

The Hunterian Lectures

ON

THE PHYSIOLOGY AND TREATMENT OF SURGICAL SHOCK AND COLLAPSE.

Delivered before the Royal College of Surgeons of England on March 6th, 8th, and 10th, 1905,

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LECTURE I.

Delivered on March 6th.

MR. PRESIDENT AND GENTLEMEN.—In most of the surgical treatises of the seventeenth and eighteenth centuries shock, if it is mentioned at all, is only described as a complication of gunshot injuries and it is attributed to the commotion or agitation communicated to the body by the bullet. Peter Lowe, a Scotchman, writing in 1612, describes syncope as a "sudden fall and decay of the whole forces of the body," and he gives as the cause of it "intemperature of the noble parts, vehement passion of the spirits, and anything which may destroy the vital spirit." The shock following gunshot injuries is attributed by him to a loss of vital heat or spirit. Le Dran, in 1737, describes shock as due to the agitation set up in the body by the bullet. Travers, writing in 1826, attributes it to a functional concussion, Groeningen, in 1835, describes shock as due to the vibratory effect of the injury. This commotion theory of shock seems to have been the most usually accepted one up to a comparatively recent date. Dupuytren attributed shock to a hæmorrhage of nerve energy. Shock has often been supposed to be due to an effect upon the heart caused by the injury either of the nature of exhaustion of that organ or of the centres controlling it. In almost all text-books on surgery there is a chapter on shock and its treatment, but if one looks back at the older text-books one cannot help being struck by the fact that there is very little difference between the way in which the subject is treated in the older books and in the more modern ones. With but few exceptions we find that the cause is mentioned as doubtful, or unknown, or is wrongly attributed to cardiac exhaustion, and the methods of treatment are based with but few exceptions upon empirical grounds or upon false ideas of the physiological causes.

The two great dangers of any big surgical operation are sepsis and shock. Thanks to the modern aseptic methods of performing operations sepsis has been practically eliminated as a source of danger and the most extensive and heroic operation can now be performed with almost complete safety as regards any fear of subsequent septic infection. But we still have to contend with shock and our aim should be to eliminate that also as thoroughly and effectually as we have eliminated sepsis. Could we be certain of preventing shock or of effectually treating it much would have been done to render surgical operations free from danger and we should be able to reduce the mortality of many operative procedures. Much has already been done by improvement in the methods of administering anæsthetics, by improved methods of operating, by saline infusion, and other allied methods to get rid of this source of danger. But much still remains to be done before shock can be said to have ceased to be a danger in the more severe surgical procedures, especially when these involve interference with the abdomen or its contents.

The study of the causation of shock is not a pathological study and pathology can teach us little or nothing in regard to it. It is a study in physiology, or rather in morbid physiology, and to understand shock and its production it is necessary to understand the physiology of the circulation and more especially of the blood pressure. If we consider the circulation as a great hydraulic system we cannot help being astonished at the way in which the pressure is maintained at or near a uniform level. In spite of the complexity of the circulatory system of man the blood pressure is maintained within a few degrees of the normal range even under extreme variations in outside pressure. In a normal healthy individual the variations in the blood pressure which follow changes from the standing to the sitting position or violent exercise or changes in atmospheric pressure are very slight. Just, however, as is the case with the thermic mechanism, so with the circulation once the individual is in an abnormal condition from disease or injury great changes in the pressure are liable to follow comparatively slight effects. The circulation of the body may be looked upon as a vast hydraulic system of infinite complexity and under the most complete control and these conditions as the results of a breakdown in the system. Ever since Harvey's great discovery the circulation of the blood has been the subject of much study. Till comparatively recently, however, but little has been known about the hydraulics of the circulation. Investigation has chiefly been confined to observations upon the pulse-rate and although the arterial tension has always been considered important and much has been learnt by its careful study by experienced clinicians, no great advance has been possible until the discovery of a suitable instrument by means of which the blood pressure can be measured accurately under normal and abnormal conditions. There are two ways in which the physiology of the circulation has been studied: (1) by experiments on animals; and (2) by clinical observations with the aid of suitable instruments for recording the blood pressure.

1. *Experiments upon animals.*—A very large number of most carefully conducted experimental observations have been carried out upon animals for the purpose of investigating this subject. There cannot, I think, be any doubt about the accuracy of these experiments as they have been amply repeated and confirmed by control experiments. There is now a very large amount of experimental data on which a more or less exact knowledge of the physiology of the condition known as shock can be founded. The most valuable work that has recently been done upon this subject is that of C. S. Sherrington, Louis Cobbet and Roy, and G. W. Crile. Almost the whole of the experimental data have been obtained by experiments upon dogs. One often hears it said that the results obtained by experiments upon dogs are not a fair criterion of the same conditions in man. And this argument is often used against the adoption of results obtained in the lower animals by experiment in the treatment of abnormal conditions or disease in man. There is, of course, a certain amount to be said for this argument but since it is impossible for experiments to be performed upon man experiments upon animals afford the only way of ascertaining the physiological conditions of the circulation in health and disease. I think when by experiments upon animals we find certain definite results follow upon certain definite causes and from these results are able to deduce a working theory which is adaptable to man, we should consider it carefully. In the case of shock the facts are very conclusive. By a large series of experiments upon dogs the physiology of shock has been most carefully worked out and the most important factors in the causation of that condition have been accurately determined. Assuming that the physiological causes of shock so worked out are also correct in man we find that all the clinical facts are compatible with that assumption and that if careful observations of the blood pressure in a patient suffering from different degrees of shock are made the results are the same as those in the experiments on animals. And further, still assuming the

theory to be correct, we find that if we treat patients suffering from shock by methods founded upon the known physiological cause of that condition we are able to modify or to arrest the shock. When these conditions are fulfilled I think we are justified in saying that we have as much proof of the causes and physiology of shock in man as is necessary. In the case of shock all these methods of investigation have been carried out and have been found to agree and although the exact physiology of shock cannot be said yet to be complete the main factors in its causation are known and have been sufficiently proved to allow of their being taken as a foundation for methods of rational treatment.

2. *Methods of estimating the blood pressure in man.*—Numerous instruments have been invented for the purpose of making clinical observations of the blood pressure. The earlier forms of apparatus, such as Hurthle's, where the arm was inclosed in a glass cylinder filled with fluid, are only suitable for laboratory work. Potain's and Hoepfle's instruments, though designed for clinical work, were too inaccurate to be of much value. These instruments were designed to estimate the pressure necessary to obliterate the pulse. Oliver's hæmadynamometer is not a very accurate instrument except in the hands of its inventor or a specially skilled observer. Gaertner's tonometer is too complicated for ordinary use and has too large a margin of error. The most practical of these instruments are Oliver's hæmadynamometer and the Hill-Barnard instrument. The chief objection to them is that they both record diastolic pressure and that to obtain a reading with them it is necessary to measure the point at which a needle or the upper surface of a fluid moves through the greatest distance. As the excursion of the needle is not great it is often very difficult to obtain a reading with any degree of accuracy and there is thus a large margin of error. In the hands of skilled observers they no doubt give very fairly accurate results but in the hands of others they are apt to be very untrustworthy. Another objection to this type of instrument is that it takes some little time to obtain a reading of the blood pressure. For an instrument to be of much clinical value it is necessary that it should be able to be used by anyone of average intelligence without any special training in its use and that there should be only a small margin of error. By far the most satisfactory instrument is the Riva-Rocci sphygmometer in one or other of its different forms. This consists of a mercurial manometer connected by rubber tubing to an inflatable rubber armlet which fits round the arm above the elbow. Connected to the tubing by a T-piece is a rubber bellows by means of which the pressure within the armlet can be increased. It estimates the pressure, acting at right angles to the artery, which is necessary to obliterate the pulse at the wrist on the peripheral side of the cuff or armlet. This pressure is the maximum systolic pressure. This is a thoroughly practical and useful instrument; it is simple in construction, it gives a positive reading within one or two millimetres of mercury, no special skill is needed to use it, and there are no springs to become worn and alter its accuracy. The Riva-Rocci sphygmometer was first brought into general use by Dr. Harvey Cushing. The great advantage of this instrument over all previous ones is that it can be very easily used and is simple in construction. Any nurse can take a reading with it and both at St. George's Hospital and the North-Eastern Hospital blood pressure charts have been kept for me by the nurses for some time and the instrument has proved perfectly suitable for ordinary routine clinical work. A reading with it can be made by anyone who has been trained to feel the pulse. The instrument records systolic pressure and the objection has been raised that this may result in error and that the mean arterial pressure ought to be taken. The mean arterial pressure would certainly be better, but it is not at present possible to get any instrument with which the mean arterial pressure can be recorded that is in any way suitable for practical use. The Riva-Rocci instrument can be used for ascertaining both the systolic and diastolic pressures (from which the mean pressure can easily be calculated) by using rigid tubes to connect the different parts of the apparatus. The position of maximum pulsation of the mercury column will then give the diastolic pressure. A portable Riva-Rocci instrument on this principle has been invented by Dr. Zaneway of New York. Zaneway's instrument has heavy tubing and is arranged to allow the diastolic as well as the systolic pressure to be ascertained. Stanton's instrument is also similarly constructed. Erlanger has invented a recording sphygmomanometer, with which it is possible to obtain absolutely accurate readings of both the systolic and diastolic pressures. This is by far the most accurate instrument but it is far too complicated and cumbersome for clinical use.

There are now several patterns of the Riva-Rocci sphygmometer. The best are those in which the cuff or armlet is at least four inches broad and in which the calibre of the manometer is not too narrow. For ordinary hospital use the patterns with a straight, upright manometer tube are the best as the reading is direct and no calculation is necessary to obtain the blood pressure in millimetres of mercury; also the mercury is less easily spilled than in the instruments fitted with a U-shaped manometer. In all the instruments which measure the blood pressure by estimating the point at which maximum pulsation occurs it is assumed that this point corresponds to the diastolic pressure. It seems almost certain, however, that it is not the diastolic pressure which is thus estimated nor yet the mean pressure. And we do not at present know what relation this so-called diastolic pressure bears to the real arterial pressure. We do know, however, that we can accurately estimate the systolic pressure by means of the Riva-Rocci type of instrument, and it is better, therefore, to record the systolic pressure only and not at present to attempt recording the mean pressure.

The blood pressure charts illustrating these lectures are compiled almost entirely from records taken with the Riva-Rocci instrument of the type shown and using a broad armlet. A source of error in the use of this instrument is that such conditions as rigid muscles, œdema of the tissue, or rigid arterial walls as in arterio-sclerosis will, by offering greater resistance to the compression of the pulse, lead to too high pressures being recorded. As a matter of fact, the error is not great except when marked arterio-sclerosis exists and for the present purpose this objection may be allowed to pass, since it is the variations in arterial pressure in a given case rather than the comparative records of blood pressure in different patients that are of importance. Its greatest value is as a test of therapeutic measures, since not only does it show the exact effect upon the blood pressure of the administration of a certain drug or procedure but it enables us to ascertain with accuracy the duration of this action. As showing the value of certain methods of treatment for conditions such as shock and collapse it is of the very greatest value and it has put an entirely new complexion upon the use of stimulants.

In using the Riva-Rocci sphygmometer the patient should always be in a horizontal position. The armlet is then adjusted round the arm above the elbow and whenever possible I use the left arm so as to keep the conditions as comparable as possible. The armlet should fit closely and should be strapped on. The instrument and inflator are then connected and with the left hand feeling the pulse air is pumped slowly into the apparatus. The pressure is gradually increased until the pulse at the wrist is obliterated; the pressure at which this occurs is read off on the manometer and then the pressure is allowed to fall slowly and the exact point at which the pulse at the wrist returns is noticed. This pressure or the mean between it and the first reading is taken as the blood pressure. In order to avoid error from respiration affecting the blood pressure as far as possible I always take a second pair of observations at once in the same way and take the mean of the four readings. It takes about 30 seconds, as a rule, to take a record of the blood pressure when one is used to the apparatus. In taking blood pressure charts of operations I always, if possible, obtained two or three observations of the patient's blood pressure previously to the commencement of the administration of the anæsthetic. During the operation observations were generally taken every five minutes or oftener if it seemed advisable. No observations were taken while anæsthesia was being induced as the variations were considerable but unimportant.

The accuracy of the instrument has been tested by observations on the cadaver, the pressure (artificially produced) within the vessel being known. It was found that the Riva-Rocci instrument gave accurate results and the resistance of the tissues caused but slight differences. By the kindness of Dr. A. D. Waller, the director of physiology at the Imperial Institute, and Dr. W. L. Symes I have been able to test the accuracy of the Riva-Rocci sphygmometer upon animals by actual comparison with a mercurial manometer connected to a cannula in one of the main arteries. Three experiments

were made upon different animals. In the first experiment a glass cannula connected to an ordinary mercurial manometer was tied into the right femoral artery and the armlet of the Riva-Rocci sphygmometer was fastened round the left thigh of the animal. In the first two animals used it was found very difficult to feel the pulse and in order to do so the artery had to be exposed in the popliteal space and directly palpated. The readings were as follows: Riva-Rocci sphygmometer, 108, 107, 107; Hg manometer, 110, 106, 106. In the second experiment the same procedure was followed. The readings were: Riva-Rocci sphygmometer, 65, 65; Hg manometer, 64, 64. In the third experiment a medium-sized dog was used and it was possible to feel the pulsation of the posterior tibial artery through the skin without exposing the vessel. The results obtained were as follows: blood pressure in right femoral with Hg manometer connected to the artery, 106, 108, 108, 110, 86; blood pressure in the left femoral obtained by Riva-Rocci sphygmometer, 118, 107, 110, 110, 84. The error of the first reading was accounted for by the armlet not being adjusted properly. These experiments show that the instrument works with quite a negligible degree of error and that the readings obtained with it may be taken as accurately representing the blood pressure in the artery compressed by the armlet. The resistance of the tissues overlying the artery did not appear in these experiments to make any difference to the readings, as the blood pressure observed with the sphygmometer was sometimes higher and sometimes lower than the real blood pressure, and what error there was appears to have been due to the personal error of the observer and not to any fault in the instrument.

Variations in the blood pressure in health.—Gravity plays a very important part in the height of the blood pressure in man and considerable variations occur in the pressure as estimated by observations on the brachial artery in different positions of the body. Dr. Stephens made a series of observations upon 22 male medical students of an average degree of health in different positions. The median or average pressure in the supine position was 156·4 millimetres of mercury and the pulse-rate was 68·7. This is the position in which the blood pressure in the body as a whole is maintained at a high level with the least difficulty as shown by the low pulse-rate as compared with any other position. In the head-down position the average pressure is 165·6 and the pulse-rate 65·6. In the standing position the average pressure is 131·0. In the lateral positions there is a very marked difference on the two sides which is accounted for partly by the effect of gravity and partly by the relation of the heart and great vessels to the position. The average pressure is 133·8 and the pulse-rate 68·6. In the right lateral position the blood pressure is 1·5 millimetres of mercury greater than in the left. The difference in the pressures in the left and right brachials is very marked, varying least in the supine and head-down positions, though in some cases it was as much as 20 millimetres of mercury. It is not possible or advisable, considering the great variations in blood pressure in different positions of the body and on the two sides, to fix any normal pressure. The normal pressure may be taken as being between 120 and 140 millimetres of mercury for a young adult. The most usually adopted normal pressure is 130 millimetres of mercury. In my own observations I have found 130 to be the most common normal pressure for a healthy adult of middle age. Mental conditions, such as excitement, fear, &c., cause temporary alterations in blood pressure. A series of observations made in America on the inmates of an orphan asylum demonstrated frequent slight variations in the blood pressure of different and of the same individuals. The ingestion of food causes a marked alteration in general blood pressure. A rise in pressure first occurs after a meal, to be followed by a fall which reaches its minimum in a few hours. This fall in pressure in the brachial artery is due to a corresponding rise in the splanchnic blood pressure due to the flushing of the intestines with blood.

Under abnormal conditions.—Variations in pressure outside the body cause alterations in the blood pressure but the vaso-motor centre is capable of compensating the pressure to an extraordinary extent. Thus in the sinking of caissons and building of tube railways the workmen often work in compressed air under very high pressures. It has been found that with ordinary care men are able to withstand pressure as high as 40 pounds to the square inch, an astonishingly high pressure when one remembers what a delicate mechanism the circulation is. Similarly it has been found in mountain and balloon ascents that very low external pressure can also be sustained without serious results and with comparatively slight alterations in the blood pressure. Potain made observations of his blood pressure during balloon ascents. In diseased states great variations in blood pressure often occur. Inflammatory conditions, especially if they affect the peritoneal cavity, cause a considerable rise in the blood pressure. In fact, perforation of the intestines or stomach and peritonitis have been diagnosed by observations upon the blood pressure. Curiously enough, organic cardiac disease has, as a rule, but little effect upon the general blood pressure. In fevers a marked rise in blood pressure is generally noticed at first but if the fever is long continued a decided fall subsequently occurs. A decided fall in blood pressure is seen during the critical stage of almost all fevers. Variations in the blood pressure occur in a great variety of abnormal and diseased conditions and it seems not improbable that in future these variations will prove to be of as much clinical importance as the variations in body temperature now are. A considerable fall in the arterial blood pressure usually results in one of three abnormal conditions or morbid physiological states—syncope, shock, or collapse. To study any one of these conditions necessitates a study of all three, since the physiological factors in each are similar. I shall start by defining these three conditions according to their physiological causes in order to prevent, if possible, any misconception in terms and I shall then proceed to give the reasons for these physiological definitions. Syncope may be defined as a sudden cessation of the cerebral circulation or cerebral anæmia. Shock may be defined as the condition resulting from a fall in general blood pressure due to exhaustion of the vaso-motor centres. Collapse may be defined as the condition resulting from a fall in general blood pressure due to inhibition of the vaso-motor centres or a loss of circulating fluid in the vessels.

Syncope.—This is a condition that appears to be peculiar to human beings. It has been shown by Mr. Leonard E. Hill that if a tame hutch rabbit is suspended by the ears it soon passes into a condition of syncope and if not put down dies. A wild rabbit, however, will stand being placed in a vertical position for a considerable time. If, however, the wild animal be chloralised suspension soon results in syncope and death; if when the animal is in this condition a tight abdominal binder be affixed the animal recovers and further suspension has no effect. The most probable reason why syncope or fainting is peculiar to the human subject is that the nervous system of man is much more highly developed and more delicately balanced than is the case in animals and also that man owing to his upright position has his circulation more under the influence of gravity and so has to depend almost entirely upon his nervous system for the proper maintenance of his cerebral circulation. In man any sudden disturbance of the higher vaso-motor centres which puts them even momentarily into abeyance allows gravity to act upon the circulation and as we should expect is followed by a sudden fall in the cerebral blood pressure, resulting in anæmia of the brain and syncope. In animals, however, we should not expect this to happen as their horizontal position does not give gravity the same advantage in respect of their cerebral circulation. That many other causes besides the fall in cerebral blood pressure contribute towards the condition we call syncope there can be little doubt; all the higher centres must be more or less affected, either primarily or secondarily, but the primary factor in the causation of syncope is the sudden stoppage of the cerebral circulation resulting from a fall in general blood pressure. It appears fairly certain from the experiments of Hill and Gulland that, whether there are vaso-motor nerves to the pial vessels or not, the vaso-motor centre does not exert any influence over the cerebral circulation such as is the case in other organs; so that the anæmia of the brain which occurs in syncope is entirely attributable to the fall in blood pressure in the general circulation and is not the result of any local contraction of the cephalic blood-vessels. It seems probable that the condition of syncope is due to a cessation of function of the cortical centres of the cerebral hemispheres, as loss of consciousness is the most marked symptom of the condition. A certain amount of rigidity is commonly seen in syncope and sometimes this may amount to a spastic condition. It would be extremely difficult, if not altogether impossible, to collect any statistics to show in what percentage of all cases of syncope there is definite spasticity

of the limb and trunk muscles. Cases of syncope occur quite unexpectedly as a rule and no medical man is at hand to observe whether the patient is rigid or not during the attack. Most medical men, however, who have been questioned on this subject admit that marked rigidity is often present. I have myself frequently observed marked spasticity in patients who have fainted and believe that a certain amount of spasm invariably accompanies a genuine attack of syncope. Professor Sherrington was the first to describe a condition which he has called decerebrate rigidity and which is a form of persistent extensor spasm. He found that after ablation of the cerebral hemispheres in an animal this condition of decerebrate rigidity comes on, either immediately or after the lapse of several minutes; the condition is a spastic one of the limb and neck muscles, the whole animal being more or less rigid with the exception of the digits. This spastic condition lasts for several hours or even days. It can be inhibited by peripheral stimulation of the skin or any of the afferent nerves or cortical centres. This decerebrate rigidity which occurs in animals after removal of the cerebral hemispheres probably has some relation with the spastic condition seen in human beings during an attack of syncope, only that in the latter case it is due to sudden alteration in intracranial pressure. That sudden anæmia of the brain from cutting off of the blood-supply will give rise to syncope there does not seem to be any doubt; obliteration of the carotid arteries in man is followed by dizziness, loss of consciousness, and often by spasm. It is interesting to notice in this connexion that some people are able to produce syncope at will by compressing their carotids, and that this method of voluntarily causing syncope is used as a form of magic to impress the ignorant among the natives of Burma and Java. It is known as Javanese anæsthesia and is undoubtedly only syncope from sudden cerebral anæmia. It was the knowledge of this physiological fact that enabled the garroters to render their victims unconscious while their pockets were rifled. Ligature of both the carotid and vertebral arteries almost simultaneously has been performed in animals many times and is found to result in loss of consciousness and voluntary movement followed in a few minutes by clonic spasms of the neck and trunk muscles. The cause of syncope is a sudden cessation of the cerebral circulation or cerebral anæmia resulting from a sudden fall in cerebral blood pressure. This sudden fall in blood pressure may be produced in a great many ways, many of which are difficult to explain. It may follow upon sudden mental impressions, especially in individuals the tone of whose central nervous system is below normal; it may follow sudden loss of fluid from the circulation; it may follow violent stimuli to afferent nerves, as in blows upon the testicle or in the splanchnic area; it may follow compression of the carotids; it may result from the effects of gravity alone, as in persons who have been long in the recumbent position and who faint upon first assuming an erect position; and it may result from several other conditions where the cause is less obvious.

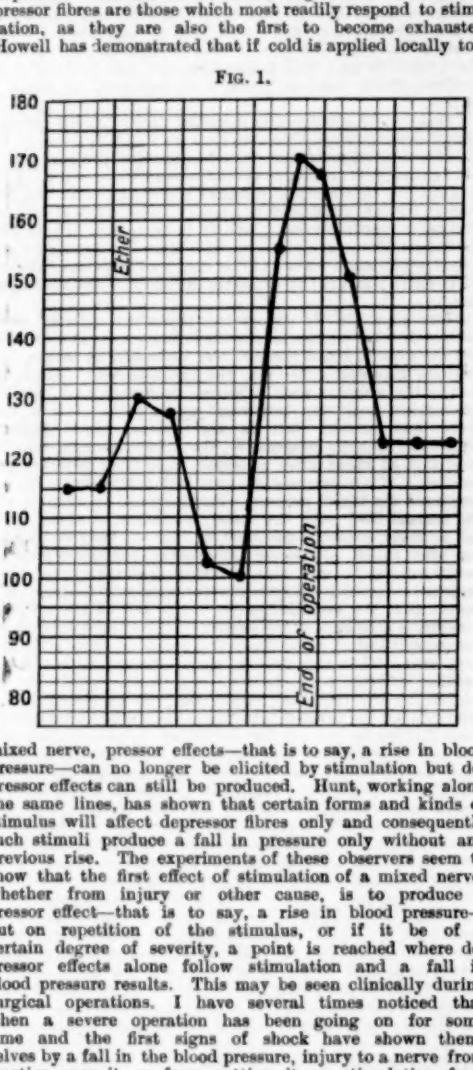
In syncope, therefore, the cerebral effects produced are caused by the sudden stoppage of the cerebral circulation, but it seems probable that this is not due to cutting off of the blood-supply to the brain tissue, as if such were the case similar cerebral effects ought to occur in conditions of shock and other conditions where anæmia of the brain is produced, but we find that so long as the anæmia of the brain is produced slowly no cerebral effects result. Also we know from experiments that the brain can remain functional on a very small blood-supply. The cerebral effects that occur in syncope therefore are not to be looked for in the effect on the brain tissue caused by the lack of blood-supply. The cause of the cerebral effects, such as loss of consciousness and spasm which result from sudden cerebral anæmia, is probably mechanical from the sudden change of tension in the cranial cavity as a whole. Sudden lowering of the cerebral arterial pressure will tend to cause a vacuum in the cranial cavity as the amount of blood in the cavity tends to be diminished suddenly and the amount of cerebro-spinal fluid immediately available to take its place is very small and increase in the quantity of the latter fluid by the transudation of lymph must of necessity be slow. Consequently when the blood pressure in the cranial cavity is suddenly diminished a great alteration in the pressure on the brain tends to take place. When the cranial blood pressure is slowly reduced, however, as is the case in shock and collapse, no such sudden alteration in intracranial tension occurs and there is time for cerebro-spinal fluid to take the place of any deficiency of blood in the cerebral vessels. No alteration therefore in the intracranial pressure need occur and, as a matter of fact, we do not find loss of consciousness and spasticity associated with the conditions of shock and collapse. The physiological law which has been called the Monro-Kellie doctrine states that the quantity of blood in the brain must be the same at all times and that it is not the volume of blood but the rate of flow through the vessels that is altered by changes in the general blood pressure. I think, however, that this law is only true for sudden alterations in blood pressure and that the explanation just given why the cerebral effects seen in syncope do not occur in shock is correct.

Physiology of shock.—The essential factor in the production of the condition which we know as shock is a steady fall in general blood pressure. This fall in blood pressure results from exhaustion or fatigue of the vaso-motor centres. That it is not due to structural changes is evident from the fact that no lesions are found in persons dying from shock and that when recovery takes place it is complete. If we take the experimental evidence we find that shock may be produced in two main ways: (1) by injury to important afferent nerve paths; and (2) by exposure or injury of the abdominal viscera

Shock produced by injury to important afferent nerve paths.—In Crile's experiments the animals were anæsthetised and the general blood pressure was estimated by means of a mercury manometer tied into the carotid artery. He found that if the animals were subjected to severe and repeated traumatism involving important nerve paths after a time there was marked fall in the general blood pressure which was steadily progressive, the animal passing into the condition of shock after a certain minimum pressure was reached. If the traumatism was sufficiently severe or was continued the blood pressure eventually fell to nothing and the animal died with the usual symptoms of shock. The fall in blood pressure was slow at first but towards the end was often rapid. By connecting another manometer with the portal vessels he was able to prove that the portal blood pressure rose while the systemic pressure was falling. This proves that the essential cause in the fall in the systemic pressure is dilatation of the vessels of the splanchnic area and consequent loss of blood from the systemic circulation into that area. That this fall in blood pressure is not due to cardiac exhaustion or, indeed, any cardiac condition was proved by the fact that shock could be produced just as readily after the cardiac branches of the stellate ganglion had been divided or the cardiac inhibitory apparatus had been cut out by section of the vagi or the injection of atropine. This clearly shows that the heart has no part in the production of shock and changes in the pulse which occur in shock are entirely secondary to the changes in blood pressure. Crile's experiments clearly show that shock resulting from severe amputations or other traumatisms of the extremities is solely due (hæmorrhage excluded) to the injury to the nerves of the part and is in direct proportion to the nerve-supply. Thus shock is more readily produced by crushing the paw of an animal than by amputation of the limb high up. This was further proved by the fact that if previously to injuring the limb the main afferent nerve trunks were cocainised so as to prevent afferent nerve impulses from reaching the brain and spinal cord no fall in blood pressure resulted and no shock was produced, however severe the traumatism. Crile found that the readiness with which shock was produced varied considerably in different animals and also with injury to different nerve paths. Thus injury to the genital organs produced shock much more rapidly than injury to the paw. Stimulation of any afferent nerve tends to cause an alteration in the blood pressure. The most usual result seen from stimulating a nerve is a rise in blood pressure. This is very easily seen during experiments on animals and is frequently seen clinically during operations if a record of the blood pressure is kept by means of a sphygmometer. The incision of the skin usually results in a marked rise in the blood pressure. Dilatation of the sphincter ani causes a very marked rise in the blood pressure (see Fig. 1). A similar result is also seen during dilatation of the os uteri (see Fig. 2). Stretching a nerve such as the sciatic for sciatica causes a very great rise in blood pressure and the first effect of almost any traumatism is to produce a rise in blood pressure. Recent observations, and especially those at Howell's laboratory, seem

to show that in every mixed nerve there exist definite nerve fibres the central stimulation of which produces a rise in blood pressure through their action on the vaso-motor centre. These fibres have been called "pressor fibres." There are also other fibres the central stimulation of which produces in a similar manner lowering of the blood pressure; these fibres have been called "depressor fibres." Both pressor and depressor fibres are found in all large mixed nerves. The pressor fibres are those which most readily respond to stimulation, as they are also the first to become exhausted. Howell has demonstrated that if cold is applied locally to a

FIG. 1.

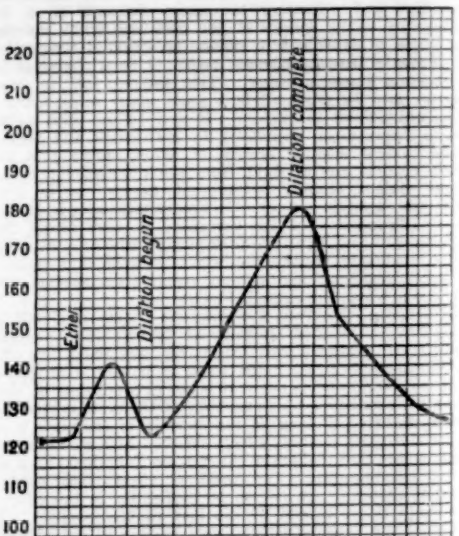


mixed nerve, pressor effects—that is to say, a rise in blood pressure—can no longer be elicited by stimulation but depressor effects can still be produced. Hunt, working along the same lines, has shown that certain forms and kinds of stimulus will affect depressor fibres only and consequently such stimuli produce a fall in pressure only without any previous rise. The experiments of these observers seem to show that the first effect of stimulation of a mixed nerve, whether from injury or other cause, is to produce a pressor effect—that is to say, a rise in blood pressure—but on repetition of the stimulus, or if it be of a certain degree of severity, a point is reached where depressor effects alone follow stimulation and a fall in blood pressure results. This may be seen clinically during surgical operations. I have several times noticed that when a severe operation has been going on for some time and the first signs of shock have shown themselves by a fall in the blood pressure, injury to a nerve from traction upon it, or from cutting it, or stimulation from enlarging the incision, has produced not a rise in the blood pressure as is usually the case but a definite and sudden fall to a lower level, showing that a depressor effect alone has been produced. These nerve impulses, reaching the vaso-motor centre by the afferent nerves from the site of operation or injury, are undoubtedly the main cause in the production of shock from injury or operation. This is proved beyond question by the fact that blocking these nerve impulses by cocainising the nerve trunks of the part prevents any alterations in the blood pressure resulting from injury or operation to the parts distal to that at which the nerves are cocainised.

Shock produced by exposure or injury of the abdominal viscera.—If an animal's abdomen was opened and the intestines freely exposed it was noticed that after a variable interval a marked fall in general blood pressure took place accompanied by vascular dilatation of the whole of the splanchnic area and if the exposure were continued the animal was eventually reduced to a profound degree of shock. This effect did not occur immediately but was sooner or later certain and was steadily progressive. Injury or manipulation of the intestines increased the effect in a marked manner and hastened the onset of profound shock. Mere exposure of the intestines, however, without any more injury than that necessary to open the abdomen is sufficient to produce shock. The fall in blood pressure after exposure of the abdominal viscera is due to dilatation of the splanchnic vessels. This could be seen to take place in these experiments and has, moreover, been frequently observed clinically in man. Further, if the arteries supplying the splanchnic area were clamped before opening the abdomen no amount of exposure or manipulation of the intestines gave rise to a fall in the blood pressure and no shock resulted. This seems to show that one of the most important factors in the production of shock is the condition of the splanchnic vessels. The vessels of the splanchnic area may be called the key of the blood pressure. It is owing to the control of this large vascular area by the vaso-motor centres through the splanchnic nerves that the blood pressure is kept at a constant level under varying conditions of the circulation. If it were not for the existence of this great vascular reservoir the distribution of the blood in different portions of the body could not be altered to any appreciable extent without causing tremendous variations in the systemic blood pressure.

Another very important series of experiments are those of Professor Sherrington and Dr. S. Monckton Copeman in which they have shown that operations upon a healthy animal are followed by a loss of fluid from the blood. After the operation has proceeded for some time the specific gravity of the blood commences to rise. This increase in the specific gravity tends to occur earlier but is prevented by absorption of fluid from the tissues and it is when this source has been exhausted that the rise in specific gravity takes place. In one of Professor Sherrington's experiments the specific

FIG. 2.



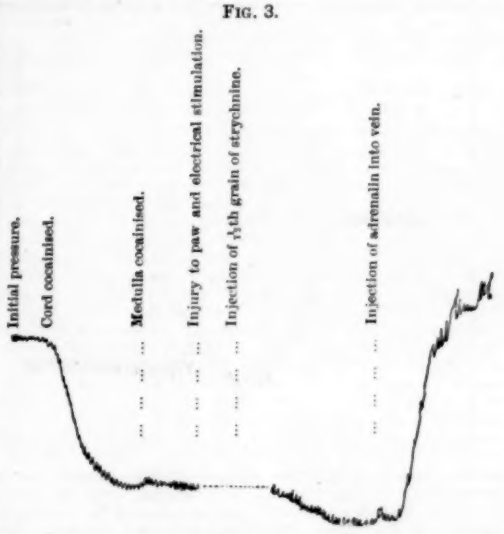
gravity of the blood rose from 1·054 to 1·062 in 15 minutes during an operation for intestinal anastomosis in a healthy dog. This increase in the specific gravity was found to last for several days after the operation and then slowly to pass off. These observations upon animals have been confirmed by testing the specific gravity of the blood of patients before, during, and after operations both by Professor Sherrington and others. Increase in the specific gravity is most marked after operations involving exposure of the peritoneum and in cases involving extensive denudation of tissue. This increase in the specific

gravity of the blood is most marked after opening the abdomen and exposing the intestines and the effect is increased by injury to the intestines. It is also well marked after burning or scalding the skin. This at once suggests that the increase in specific gravity is due to evaporation from a tissue surface uncovered or denuded of the skin which should ordinarily protect it. There does not, however, appear at present to be sufficient evidence to prove that this is the case. That this factor is an important one in the production of shock in some cases there can be little doubt. An increase in the specific gravity of the blood as great as was the case in some of these experiments must greatly interfere with the already impaired circulation. It would seem to account for the great thirst which is such a common feature after most abdominal operations. From the aspect of treatment it is of considerable importance, as it has been supposed that the transfusion of saline solution so lowered the specific gravity of the blood that it was prevented from being beneficial in the treatment of shock except when employed in small quantities. This is, however, not the case, as a large quantity of saline solution has to be injected before the specific gravity will even come down to the normal and, indeed, it was found in the experiments that although the specific gravity could be reduced to the normal by transfusion it rapidly increased again if the exposure of the peritoneum was continued. In some of the observations made upon patients during prolonged abdominal sections the rise was as much as five or even seven degrees. Cobbett and Roy somewhat earlier had carried out a similar series of experiments in which they showed that the shock resulting from prolonged abdominal operations was accompanied by a marked increase in the specific gravity of the blood, the blood in some cases becoming so thick that it flowed with difficulty except from the largest arteries. Arguing from these experiments Cobbett compared the prostration of the abdominal operations to the collapse of cholera in which a similar inspissation of the blood is found to occur. The question that at once suggests itself is, Is this change in the specific gravity of the blood which occurs in shock the cause of the fall in blood pressure or is it the result of it? Dr. W. S. Lazarus-Barlow has shown that if the volume of blood in the body is increased by bandaging the extremities there is an outpouring of fluid from the blood into the tissues and the specific gravity of the tissues is *lowered*. After a few hours, however, the normal equilibrium between the blood and the tissues is re-established again. If, then, the bandages are removed the volume of blood in the body is decreased and there is a flow of fluid from the tissues into the blood so that the specific gravity of the tissues is *increased*. This seems to show that when there is a demand for a larger volume of blood the tissues give up fluid to the blood to make up the deficiency and when there is occasion for a less volume of blood in the body the reverse condition occurs. From this it seems probable that the alterations in the specific gravity of the blood which occur in shock are the result of the fall in the blood pressure.

Another phenomenon of importance which has been observed in shock was first noticed by John Hunter while bleeding a patient for syncope. He noticed that the blood which flowed from the vein was bright red instead of being blue. This arterial hue of the blood in the veins during conditions of greatly lowered blood pressure has been noticed by numerous different observers and has been attributed to very different causes. One obvious explanation is that owing to the vaso-dilatation which is the cause of the fall in blood pressure the blood is able to get through from the arteries into the veins more easily than normal and consequently does not lose its oxygen. Brown-Séquard found that this condition of an arterial hue of the venous blood was present in animals suddenly killed by electrical stimulation of the vagi, and he says that arterial contraction accompanied the condition. He therefore argues that this condition of arterial blood in the veins must be due to an arrest of all metabolic processes. He noticed the same condition in shock experimentally produced. Roger made similar observations and comes to the same conclusion as Brown-Séquard. Van Engelen demonstrated that absorption is much retarded in shock. Contjean has also demonstrated the same fact. Frank Vale has confirmed these experiments of Roger and Contjean and he argues from them and from Brown-Séquard's experiments that the condition of shock is primarily due to an arrest of metabolic processes or a general arrest of cell activity and that it cannot be due simply to exhaustion or paralysis of the nerve centres. It seems to me that these arguments are not conclusive and that we can quite well attribute the arrest of metabolic processes to the fall in blood pressure.

Further proof that exhaustion of the vaso-motor centres is the cause of shock is afforded by the fact that when profound shock has been established procedures which normally produce marked stimulation of the vaso-motor centres with a corresponding rise in blood pressure have no such effect—such procedures, for instance, as electrical or traumatic stimulation of large nerves, injection of strychnine into the veins, asphyxia, &c., all of which must produce a rise in blood pressure if the vaso-motor centres are not exhausted. Crile argued that if shock is produced by exhaustion of the vaso-motor centres it should be possible to produce shock by cutting out the action of the vaso-motor centres in a healthy animal. This was done by injecting into the medulla a 2 per cent. solution of cocaine. At the time of the injection the blood pressure was 115 millimetres of Hg; immediately afterwards it fell to 50 millimetres, that is to say, to the level of profound shock. Respiration stopped and artificial respiration had to be supplied. While the pressure was at this level electrical stimulation of the sciatic nerve, the injection of strychnine, and other methods which normally caused a rise produced no alteration in the blood pressure. After the animal had been in this condition of profound shock for some time, during which no form of stimulation caused any rise in the blood pressure, 22

FIG. 3.



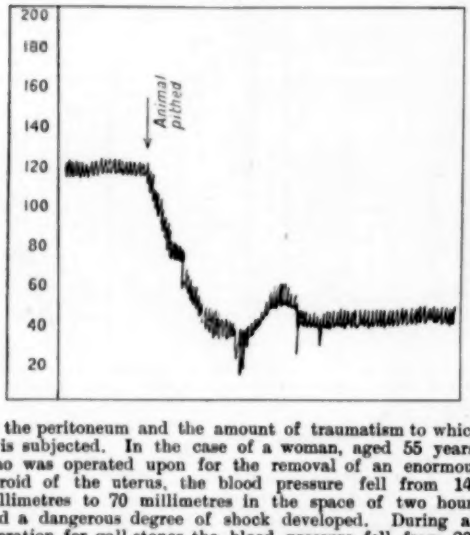
minims of adrenalin were injected; the pressure at once rose to 250 millimetres of Hg and this pressure was sustained for nearly two minutes. Crile repeated this experiment several times with the same results (Fig. 3). This experiment affords a further and most emphatic proof that exhaustion of the vaso-motor centres is the cause of shock. A similar result is also obtained if the vaso-motor centres are destroyed by pithing an animal. (Fig. 4.)

The results of these experiments upon animals have been confirmed by clinical observations of the blood pressure during surgical operations upon man. Some of the earliest clinical observations were made by Kapsammer working with the Gaertner tonometer. Since the introduction of the Riva-Rocci sphygmometer by Cushing of Baltimore a great many observations have been made. Cushing made numerous clinical observations upon the blood pressure during surgical procedures with the Riva-Rocci instrument. Crile, Mayo, and others have also recorded numerous observations. Also working with the Riva-Rocci instrument I have for some time kept careful records of the blood pressure during surgical procedures and a considerable amount of valuable knowledge has thus been acquired. Injury to important afferent nerve paths in man produces a fall in blood pressure similar to that which was found to be the case by Crile in dogs. Evulsion of the Gasserian ganglion causes a considerable fall in blood pressure and shock results; this was observed

in two cases by Cushing. During amputation of the penis for epithelioma in an old man Crile observed a fall in pressure from 190 millimetres to 112. During an operation upon a scrotal hernia in which a firmly adherent sac was dissected off the cord Crile observed a fall in blood pressure from 152 to 58 millimetres. In one case of extensive removal of the breast for carcinoma in which during the process of clearing the axilla there was considerable traction upon the brachial plexus I observed a fall in pressure from 135 millimetres to 60 millimetres; the pressure soon rose again but remained for some time between 80 and 100 millimetres and a slight degree of shock developed, the pressure not returning to its previous level for over 24 hours. In another case of a very difficult excision of the shoulder for an old dislocation in a woman, aged 53 years, the pressure fell from 160 millimetres to 95 millimetres. In all cases where careful observations of the blood pressure during operation are taken the fall in blood pressure and shock which occurs is found to be in proportion to the duration of the operation, the amount of traumatism to which the tissues are subjected, the loss of blood, and the importance of the nerves in the field of operation.

In operations upon the abdomen there is usually a steady decline in the blood pressure. In the earlier stages of an abdominal operation irregular rises in blood pressure are usually noticed due to stimulatory effects from traction or trauma of the peritoneum; during the later stages a steady fall is usually observed. The extent of the decline in blood pressure is influenced very much by the amount of exposure

FIG. 4.



of the peritoneum and the amount of traumatism to which it is subjected. In the case of a woman, aged 55 years, who was operated upon for the removal of an enormous fibroid of the uterus, the blood pressure fell from 140 millimetres to 70 millimetres in the space of two hours and a dangerous degree of shock developed. During an operation for gall-stones the blood pressure fell from 200 millimetres of Hg to 125 millimetres of Hg in 35 minutes. The reason why shock tends to develop as the result of abdominal operations or injury is probably two-fold. In the first place the removal of the support of the abdominal wall from the contained viscera allows dilatation of the splanchnic blood-vessels to occur and this tends to lower the blood pressure. Secondly, any operation upon the abdominal contents means considerable mechanical insult to the sympathetic nerves.

The easiest and clearest way of describing the physiological sequence in the causation and development of surgical shock and of showing the different physiological factors in their true relation to one another and to the result is to describe the course of events in a case in which shock develops as the result of some surgical operation. I believe the course of events to be somewhat as follows. A fall in general blood pressure takes place or tends to take place. This will immediately be compensated for by the vaso-motor centres; vaso-constrictor impulses will be sent out and the pressure will rise again, or if this takes place with sufficient rapidity will not fall. Of course, if the shock is due to a primary breakdown of the vaso-motor centre this stage of compensation will be absent. If the cause of the original fall in blood pressure continues this compensation will sooner or later become insufficient to maintain the blood pressure and the aid of the heart will be called in by means of the cardio-accelerator centre, and for a time by increased action the heart will help in maintaining the mean pressure. This we see by the fact that in the development of shock the rapidity of the pulse is increased. As the vaso-motor centre becomes exhausted, however, a point will be reached when, in spite of the increased action of the heart, it is no longer possible for the pressure to be maintained at the normal level and consequently a fall in general blood pressure will occur. Directly the blood pressure has fallen below a certain level the circulation will become partially inefficient and not only will the circulation of the different nerve centres be impaired but the blood itself will not be properly oxygenated owing to the pressure not being maintained in the lungs. This will affect all the great nerve centres and will tend to hasten exhaustion and to prevent recovery of the vaso-motor centres. As the vaso-motor mechanism breaks down there will be a tendency for the blood to collect in the large venous trunks and especially in the large splanchnic veins. This will interfere with the intake of the heart. As the output of the heart is directly proportional to its intake and the latter is diminished owing to stagnation of the blood in the great venous trunks supplying the right auricle, the former will be proportionally diminished. It has been proved experimentally by Crile and other observers that the output of the heart is not dependent upon the aortic blood pressure but upon the pressure in the vena cava. As the supply of blood to the right side of the heart is diminished it will beat more and more rapidly to try to compensate for the small volume of blood which it has to act upon. At the same time there will be transudation of fluid from the blood-vessels into tissues or in the case of abdominal injury into the peritoneum and the specific gravity of the blood will be increased. And as the result of the falling blood pressure and failure of the circulation the general cell activity of the body will be arrested or diminished and all metabolic processes will cease and death will ensue.

Surgical shock is the result of a general vaso-motor paralysis, the primal cause being exhaustion of the vaso-motor centres. Other centres, such as the cardiac and respiratory centres, are only affected secondarily in most cases. As one would naturally suppose, shock and the conditions which give rise to it cause very marked alterations in the action of the heart. The pulse-rate affords a useful guide to the condition of the vaso-motor mechanism during operative procedures secondary only in importance to the blood pressure. In most of the blood pressure charts taken during operations the pulse-rate has been recorded at the same time as the blood pressure, and it is noticeable in these charts that during the early stages of the operation the pulse-rate follows the blood pressure. That is to say, that a rise in the blood pressure is usually accompanied by an increase in the pulse-rate and *vice versâ*. During the later stages of severe operations, however, when the blood pressure has reached a low level or when shock has developed, a fall in the blood pressure is accompanied by an increase in pulse-rate and when the blood pressure rises again the pulse-rate decreases. This shows that the heart by increased action is attempting to compensate for the fall in blood pressure and that the vaso-motor mechanism is becoming inefficient to hold up the blood pressure by itself.

I do not wish to argue that the only centres affected in shock are the vaso-motor centres. There can, I think, be no doubt that all the other centres are more or less affected in profound degrees of shock. But I think that as regards the production of the phenomena of shock the exhaustion of the vaso-motor centres and the consequent general vaso-motor paralysis is the primary factor and that the other centres are for the most part secondarily affected and that the other phenomena of shock are the result of this vaso-motor paralysis and the resulting fall in general blood pressure. In many cases of shock there is a marked toxic element present. We see this in cases were patients die apparently from shock soon after operations upon the abdomen, where septic peritonitis or intestinal obstruction are found to be present. Such cases often die from shock, though the severity of the operation is not sufficient by itself to account for the condition. In such cases direct poisoning of the nerve centres, especially of the vaso-motor centres by the toxins in the blood, is a factor of

no inconsiderable importance in the production of exhaustion and paralysis of these centres. After all the step from exhaustion produced by over-stimulation or over-work of the vaso-motor centres to that of poisoning by toxic products in the blood is no great one. And in many cases of death from shock after operations for conditions where there is septic peritonitis or a similar condition present I believe this toxic element to be an important contributory factor in the production of shock. That this toxic condition of the blood may cause marked effects upon the nerve centres and may cause a fall in the blood pressure we have abundant evidence in the low blood pressure found during the critical stage of almost all acute infections, such as pneumonia, diphtheria, typhoid fever, and septicæmia.

The physiology of collapse.—Collapse differs from shock mainly in the fact that the vaso-motor centres are not exhausted. The symptoms in the two conditions are almost identical but whereas in shock the vaso-motor centres are exhausted in collapse their function is suspended. Collapse is the condition due to a sudden great fall in blood pressure resulting from a severe hæmorrhage or from a great and sudden loss of circulating fluid such as occurs in cholera; or from a sudden suspension of function or paralysis of the vaso-motor centres resulting from some violent afferent nerve impulse as, for instance, a blow in the splanchnic area or upon the genital organs. The symptoms in shock and collapse are practically identical. In shock, however, the condition develops gradually, whereas in collapse it develops suddenly or at any rate rapidly. There is, however, a very important difference in the way in which these two conditions react to treatment. In shock treatment is very difficult and often unsatisfactory since we have to deal with *exhausted* nerve centres. In collapse, on the other hand, treatment is much more likely to be effective, since the cause is either a lack of circulating fluid, which can be remedied, or a suspension of function of nerve centres, it being only necessary to set them going again. Crile has demonstrated that animals dying from collapse can be resuscitated 15 minutes after they are apparently dead. A dog apparently dead from the effects of an electric current of 2300 volts was restored to life and in a patient whose heart had ceased beating for nine minutes the normal functions were restored for 32 minutes.

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ABSTRACT OF

The Hunterian Lectures

ON

THE CHANGES PRODUCED BY INFLAMMATION IN THE CONJUNCTIVA.

Delivered before the Royal College of Surgeons of England on Feb. 27th and March 1st and 3rd, 1905,

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LECTURE III.[1]

Delivered on March 3rd.

TRACHOMA.

MR. PRESIDENT AND GENTLEMEN,—Trachoma, I think, is a specific infective disease of the subepithelial lymphoid tissue of the conjunctiva, characterised by the formation of follicles and by infiltration, which go on to subsequent cicatrisation and partial obliteration of the conjunctival sac. Clinically the disease usually appears at first in the upper fornix and is characterised by the formation of follicles. These follicles may remain for a long time and reach a large size without giving rise to any symptoms. At other times a muco-purulent conjunctivitis is set up. This muco-purulent conjunctivitis does not occur in all cases nor at the same period of any particular case, and indeed may not occur at all throughout a case. Pyogenic organisms are always found in the discharge and indeed I think the purulent discharge in these cases may be looked upon as a septic infection of the conjunctiva in addition to the trachoma which without doubt lowers the vitality of the tissue and provides a means of entrance to the organisms by rupture of the follicles. This muco-purulent conjunctivitis may have varying effects on the disease. It may be associated with increased spread, as is seen in the most virulent cases, which are usually accompanied by a quantity of discharge; or it may bring about its cure, the reasons for which will be discussed more fully when speaking of its pathology. Not only are follicles formed in the subepithelial tissue but diffuse infiltration of the tissue occurs, the conjunctiva appearing red, brawny, and swollen. Although, pathologically speaking, follicular formations and infiltration do not occur apart, they receive names to distinguish them clinically in this disease. Hence the terms follicular, papillary (in which the infiltration is chiefly superficial), and brawny œdema (Stelwag) in which deep infiltration is broken up by fibrous tissue.

The etiology of pannus will be discussed with its histology.

Histology.—These observations were made on sections from over 30 cases of trachoma.

[The appearances noted in the epithelium and the follicles were then described.]

CONCLUSIONS AS TO THE ORIGIN AND EFFECTS OF THE DISEASE ON THE CELLS OF THE FOLLICLES.

As we have already seen, trachoma is produced by direct infection. The actual cause of the disease has not yet been discovered and although numbers of organisms have been described none has yet been identified as pathogenic to the disease. Without doubt, whatever the cause of the disease, it has a very powerful action on the cells, for we have seen the amount of destruction it produces in the centre of the follicles where, presumably, the disease is most active. As a result of the destruction of these cells hyaline material is formed which may subsequently develop other changes. In the follicles of follicular conjunctivitis we find great numbers of plasma cells, whereas in a definitely trachomatous follicle they are practically absent. Now if plasma cells are derived from the endothelium with the lymphocytes, how is it that they do not appear in the follicles of trachoma? The answer to this question seems to me twofold. First, plasma cells, to judge by their intensely basic staining reaction, are probably young cells and very active proliferation of the endothelium is not taking place. Secondly, I have shown that plasma cells are not very resistant to toxins and are easily broken up; hence, if formed, they would quickly disappear. Indeed, Whitfield has suggested that the presence of these cells is evidence of the attempt at the production of local immunity in the part.

It has been stated that follicular conjunctivitis and trachoma are identical diseases and that the milder follicular conjunctivitis is simply the beginning of trachoma. This statement was made before the introduction of plasma stains and I need hardly say is incorrect. All the follicles in trachoma do not show the changes above described but many of them show no change beyond that found in the so-called follicular conjunctivitis. This, I think, is due to the fact that they are not infected with trachoma, for if we take an analogous example, such as in rare cases of tuberculosis which affects the follicles, necrosis can be seen in some of the follicles, lying side by side with perfectly healthy follicles. The effect of the tubercle bacillus on the cells is very nearly allied to trachoma, causing destruction of the plasma cell at the most active site of the disease, with an increased formation outside the diseased area. Similarly, in the early stages of tuberculosis of the lymphatic glands, there are often found follicles in the same gland which are not affected with the disease. I take it, therefore, that the granules in trachoma are follicular formation *plus* trachomatous infection, the follicles being simply an effort on the part of the tissues to produce mononuclear cells and becoming secondarily infected with trachoma. Although, indeed, as a general rule, a considerable number of them seem to be infected even in quite the early stages, as is evidenced by the cells beginning to show signs of degeneration and by plasma cells being

[1] Lectures I. and II. were published in THE LANCET of March 4th (p. 545) and 11th (p. 625), 1905, respectively.

absent, yet follicles can be found in trachoma which are packed with well-formed plasma cells and are evidently not yet infected with trachoma. These follicles may contain considerably more plasma cells than those of follicular conjunctivitis.

THE DIFFERENTIAL DIAGNOSIS OF FOLLICULAR CONJUNCTIVITIS AND TRACHOMA.

Clinically the differential diagnosis of trachoma and follicular conjunctivitis is made principally from the following facts: 1. The follicles in follicular conjunctivitis are found principally in the lower fornix, whilst those of trachoma are in the upper. Follicles on the tarsus are more frequent in trachoma. 2. The absence of scarring in follicular conjunctivitis. 3. The absence of pannus in follicular conjunctivitis. 4. It has been said that trachoma is most common in adults although I think that there is considerable doubt about this statement, whereas follicular conjunctivitis occurs principally in children.

Microscopically: 1. Smear preparations from the conjunctiva obtained by gentle friction contain an enormous number of plasma cells in trachoma; in follicular conjunctivitis, although the discharge often contains a certain number, they are not found to the same extent. 2. Sections: (*a*) *The epithelium* in follicular conjunctivitis, although showing extensive mucoid change, does not dip down into the tissue to the same extent and there is not so much new gland formation. (*b*) *The subepithelial tissue* in trachoma consists almost entirely of plasma cells; in follicular conjunctivitis, although they occur in large quantities near the follicles, they are not packed together beneath the epithelium as they are in trachoma. (*c*) In trachoma there is an increase in the fibrous tissue which often contains a large number of mast cells; the mononuclear exudation extends into the deep layer of the conjunctiva. In follicular conjunctivitis the deeper layers of the conjunctiva are unchanged. The follicle in trachoma contains practically no plasma cells and in the centre the cells are undergoing necrosis and there are very few cells undergoing mitosis.

Epithelioid-like cells are absent from the follicles of follicular conjunctivitis but are present in trachoma. The older follicles of trachoma contain considerable numbers of well-formed connective tissue cells, which are practically absent in follicular conjunctivitis. In sections from both diseases, one finds usually follicles of varying age; it is therefore generally possible to make a differential diagnosis. But it must also be remembered that a trachomatous conjunctiva may have a healthy follicle, which may contain even a greater number of plasma cells than in follicular conjunctivitis. The most important point in determining the diagnosis is the necrosis of the cells, which in trachoma can not only be seen in the follicle but in the infiltration. (See Stelwag's brawny œdema.)

THE HISTOLOGY OF THE BULBAR CONJUNCTIVA IN TRACHOMA.

The epithelium shows some short papilla-like processes which dip down into the subconjunctival tissue. It is also somewhat thickened on the surface.

Subepithelial tissue.—It is usually stated that the bulbar conjunctiva is unchanged in trachoma. This is not, strictly speaking, correct. I have had the opportunity of examining three cases of bulbar conjunctiva in trachoma removed by peritomy in which there were considerable infiltration of the lids and well-marked pannus. The subepithelial tissue shows a great increase in the number of plasma cells and some chorioplaques. A quantity of new vessels with a proliferating endothelium are also seen. As the limbus is approached this layer is greatly increased in thickness and the plasma cells in the deeper layers show extensive degeneration. At the limbus there are found a number of collections of lymphocytes and mononuclear leucocytes surrounded by masses of plasma cells in every stage of degeneration. These masses of leucocytes degenerate into epithelioid-like cells towards the centre. There are no plasma cells in these masses although the surrounding tissue consists practically of nothing else. In fact, the whole appearance is similar to the follicles seen in the lids except that these follicles at the limbus are smaller in size, contain no darkly staining outer zone, and have a smaller number of plasma cells.

CONCLUSIONS AS TO THE CHANGES AT THE LIMBUS.

There has been considerable discussion as to whether the condition of the limbus is a true infection with trachoma or not. I think from examining the above-described sections that the answer is without doubt in the affirmative. It is generally admitted that the bulbar conjunctiva is not affected with trachoma. No doubt as the result of the irritation produced by the friction of the granules over the surface it becomes filled with well-formed plasma cells, showing that the disease is absent, but as the limbus is approached the tissue alters entirely. The plasma cells disintegrate and masses of mononuclear leucocytes make their appearance, whilst at the limbus we find plasma cells completely absent and the mononuclear cells in every stage of degeneration forming a typical trachomatous follicle, similar to that seen in the fornix.

HISTOLOGY OF PANNUS.

I have only been fortunate enough to cut sections of one case of pannus in which the eye had been hardened in alcohol. Clinically, the case was of not very great severity, the pannus covering about the upper third of the cornea and not very dense.

The epithelium over the surface of the cornea was slightly thickened and towards the lower margin of the pannus a break in the epithelium, evidently a small ulcer, could be seen.

Subconjunctival tissue.—Beneath the epithelium there were a considerable number of new vessels surrounded by lymphocytes and plasma cells. These had formed a more or less rounded accumulation somewhat resembling a modified follicle. Clinically I have seen cases of very thick flesh pannus in which if sections had been made I am sure that true follicular formation would have been found. Indeed, I think that pannus is nothing more than the spread of the disease from the limbus to the cornea modified by the dense nature of the tissue and the absence of the blood-vessels.

HISTOLOGY OF THE VARIOUS FORMS OF TRACHOMA.

Papillary trachoma.—In this form of trachoma the conjunctiva, when examined clinically, is seen to be covered with minute papillæ, like the pile on velvet. As a rule this condition is found in the early stages of trachoma and as it subsides the follicles make their appearance.

Histology.—The epithelium is thrown into folds by the swelling beneath, the surfaces in apposition showing mucoid change; in fact, they form the so-called new glands.

The subepithelial tissue consists of an exudation of mononuclear leucocytes and plasma cells, the plasma cells being principally found directly beneath the epithelium, especially at the summit of the papillæ. Beneath the papillæ are found typical trachomatous follicles which are usually small and the existence of which is masked by the papillæ. There is comparatively little fibrous tissue; in fact, the papillary condition seems to be characteristic of the early stage of the disease.

Brawny œdema (Stelwag).—In this condition the upper palpebral conjunctiva is converted into a pale gelatinous-looking tissue; it is usually associated with much scarring and is generally found in cases of trachoma of long standing. Microscopically the condition is of considerable interest.

The epithelium is thickened and is often keratinised and, unlike the other forms of trachoma, is not thrown into folds but is smooth on the surface.

The subepithelial layer consists of infiltration much broken up by fibrous tissue, there being practically no follicular formations. The infiltration consists of a few mononuclear cells and a large number of plasma cells; these latter cells are found in all stages of degeneration, their cytoplasm being much broken up but still taking the pyronine stain. When separated from the cell this material is found both free in the infiltration and scattered through the fibrous tissue, constituting a form of hyaline degeneration. The newly formed fibrous tissue takes up the pyronine of Pappenheim's stain on that account. Sometimes this hyaline material goes on, no doubt, to secondary changes, such as amyloid and calcareous degeneration.

Phlyctenulæ.—Clinically, in its simplest form a phlyctenule is a small red eminence of about the size of a millet seed, usually seen in the ocular conjunctiva, in the region of the limbus, with a leash of dilated vessels leading up to it. As a rule, the epithelium on the surface of the eminence gives way, with the extrusion of the contents and the formation of a greyish looking ulcer, which rapidly heals. Occasionally these nodules disappear without the formation of an ulcer. Almost invariably the disease is preceded by some other form of conjunctivitis, it being very rare to find a case in which there has not been some slight discharge beforehand if the history be carefully inquired into.

The position of the phlyctenule is by no means limited to the limbus, although without doubt that is the most common situation for the lesion. It is found in other parts of the bulbar conjunctiva and, according to H. Herbert,[3] it occurs on the palpebral conjunctiva. This statement I have had the opportunity of verifying in a child suffering from a muco-purulent conjunctivitis due to the staphylococcus pyogenes albus, accompanied by pustules on the face due to the discharge from the eye. On the outer side of the limbus was a typical phlyctenule. On everting the upper lid there were three or four follicular-like enlargements on the palpebral conjunctiva covering the tarsus, one of which was ulcerating. There were no other follicles in the upper or lower fornices or in the other eye. A piece of this tissue containing two of the phlyctenulæ was removed for examination. The other phlyctenules disappeared in one week under protargol. Finally, phlyctenulæ may start in or spread to the cornea from the limbus, and when lasting for some time become vascularised by the budding out of the endothelium of the vessels from that region.

The number of the phlyctenular varies considerably. In some cases there are only one or two; in others they may be extremely numerous, the conjunctiva in the neighbourhood of the limbus being covered with very small nodules which do not usually break down into ulcers but resolve. In cases in which the discharge from the eye runs down over the face numerous pustules are formed in the skin from direct infection. The patients are usually children, although not invariably so, and are as a rule run down in health. It is stated that these children are always tuberculous and it is supposed by some authorities that these lesions are of a tuberculous nature, but since the surroundings which give rise to both diseases are the same this theory is of but little value, especially as the pathological changes do not bear it out.

Histology.—I have had the opportunity of examining eight cases microscopically which showed most of the stages of the disease.

[The histology and bacteriology of phlyctenular conjunctivitis were then described.]

Conclusions.—This disease, like tuberculosis, is essentially associated with low vitality in the patient and diminished resistance to bacterial invasion. Hence it is only natural that these diseases should often be found in the same subject. The discharge in cases of phlyctenular conjunctivitis runs over the face and produces suppurating points in the skin. We know that if the staphylococcus is rubbed into the skin it will produce similar suppuration. But Leber, like Bach, has been unable to reproduce the disease by inoculating the healthy conjunctiva with the pus from these points. This, I think, may probably be accounted for in the same way that crops of boils constantly recur in the skin in patients who are out of health through reinfection from the discharge but cease to form directly the health is re-established. With regard to the histology, although in the early stages the exudation is chiefly mononuclear it becomes polynuclear before rupture takes place, a point which is almost positive evidence of the presence of pyogenic organisms. The occurrence of the mononuclear cells I think can be accounted for by the special tendency of the conjunctiva to form mononuclear cells, as has been shown when treating of the lymphoid tissue of the conjunctiva. The most frequent seat of phlyctenulæ is the limbus, a point at which the conjunctiva is attached firmly to, and supported by, the globe, so that the lid, passing constantly over the surface, is more likely to rub the organism in. Although the corneal conjunctiva is equally subject to friction from the lid the entrance of organisms is probably hindered to some extent by Bowman's membrane although phlyctenular ulcers do occur here also. Another factor undoubtedly is the absence of lymphoid tissue, for we find that phlyctenulæ only occur where none exists.

The whole course and histology of a phlyctenule correspond very closely to those of a boil on the skin, to which, I think, it is exactly comparable, with the exception that it occurs in a thin membrane in which rupture takes place very early. In the cornea where the tissues are thicker definite macroscopic abscesses are occasionally found. When the disease starts in, or spreads to, the cornea the ulcer which is produced often persists for a considerable time, the endothelium of the vessels which bud out from the limbus vascularising its base. The long duration of a phlyctenular ulcer in the cornea compared with that of one at the limbus is very marked, which is, I think, accounted for very largely by the non-vascular condition of the cornea, for we have seen that a healing phlyctenule at the limbus consists practically of new vessels and proliferating endothelium.

The comparative absence of the plasma cell in this disease is of considerable interest. We have seen that this cell does not make its appearance to any extent during acute inflammatory processes but that in tuberculosis around the foci of the disease they are present in enormous numbers. In other words, the non-appearance of the plasma cell in phlyctenulæ is indicative of an acute inflammatory process and therefore not due to tubercle which produces plasma cells in enormous numbers. In the healing stage plasma cells are not present to any extent and we have already seen in trachoma, &c., that the presence of the plasma cell is an indication of local immunity. So again in phlyctenulæ their non-appearance is associated with the fact that phlyctenule after phlyctenule can recur about the same region.

VERNAL CATARRH.

Histology.—The condition is one of enormous papillary overgrowth of the conjunctiva.

The epithelium is thickened over the surface of the papillæ and in the folds dips down into the underlying tissue. As a rule these processes show comparatively little mucoid change.

Subconjunctival tissue.—The papillæ on the tarsal conjunctivæ are very hard and consist of a quantity of dense connective tissue. It has been pointed out by Herbert[3] that in addition to the ordinary connective-tissue cells there are a quantity of eosinophile cells and that these cells are present in the discharge—a point which he considers diagnostic. I have examined six cases histologically and can confirm this point in every way. The eosinophiles, both polymorphonuclear and mononuclear, are found in enormous numbers in the discharge, whole fields of the $\frac{1}{12}$th often containing no other cells. The granules from the cells which are often ruptured being scattered through the specimen they are best demonstrated by staining with Leishman's methylene blue compound. In the tissue they are far fewer in proportion than the other leucocytes, their appearance in such large quantities in the discharge being due to their greater power of amœboid movement. They are situated principally in the small vessels lying beneath the epithelium and can be seen coming through the vessel walls, being derived from the blood. I could find no evidence of proliferation of these cells in the tissue. According to Herbert they make their way through breaks in the epithelium. Although this is so, all my sections show them actually in the epithelium, making their way through it. In addition to these cells there are considerable numbers of plasma cells, most of which show marked necrosis, evidently due to the presence of some powerful toxin.

SUMMARY OF THE CHANGES WHICH OCCUR IN THE SUB-EPITHELIAL TISSUE OF THE CONJUNCTIVA AS THE RESULT OF INFLAMMATION, AS SHOWN BY THEIR HISTOLOGY.

In studying inflammation in the conjunctiva we are dealing with a tissue which is very responsive to the slightest stimulus and the cells of which are normally undergoing proliferation in the superficial layers. It is moist and warm, well supplied with blood, nerves, and lymphatics—all factors which assist in rapid tissue changes.

The cells.—The character of the cells found in the exudation depends on the character and degree of virulence of the toxin introduced into the conjunctiva; if this be extreme, as in the case of the pyogenic micro-organisms, there follows a response, not only locally in the tissue of the conjunctiva, but from other tissues of the body, such as the bone marrow, with the resultant exudation in the conjunctiva of polynuclear leucocytes[4] brought by the blood stream from these organs to the inflamed conjunctiva as seen in the early stages of a wound or in acute muco-purulent ophthalmia. When the toxin is not so virulent,

[3] Ophthalmological Review, 1898.

[3] British Medical Association Meeting, 1903.

[4] The polynuclear leucocytes are mostly neutrophile, but in some forms of exudation, such as that occurring in vernal catarrh, the eosinophile cells may predominate.

especially when the subepithelial tissue is directly affected, as in the early stages of a phlyctenule, the local response on the part of the tissue is the production of mononuclear leucocytes. These cells are probably derived from the rapid proliferation of the perithelium and endothelium of the blood-vessels, lymphatics, glands, &c., which in the conjunctiva produce these cells with enormous rapidity.

The conjunctiva is always receiving a certain amount of irritation and therefore is producing mononuclear cells, the only period at which these cells are absent from the tissue being the fœtal stage of existence, when naturally no irritation occurs. Now when the degree of irritation is increased, as in the case of atropine irritation or in the later stages of Koch-Weeks conjunctivitis, there is an increased call on the tissue for the production of mononuclear cells, followed by the formation of follicles. This follicular formation also occurs in children without any special cause of irritation at the age when the lymphoid tissue is unusually active and is then known as follicular conjunctivitis. The follicles are either small and discrete or large and containing a number of other follicles (which I have called endo-follicles); the latter variety are identical with lymphatic glands which, like the follicles, may be of new formation. Subsequently these follicles, like the lymphatic glands, can become the seat of disease, such as tubercle, trachoma, &c., and undergo secondary degeneration changes, such as hyaline, amyloid, &c.

In all inflammatory changes of any duration the plasma cell is produced, its presence in large numbers signifying that the disease is chronic or of a non-virulent type such as diplobacillary conjunctivitis. Its origin is closely allied to the mononuclear leucocyte, its structure and staining reaction being very similar to the large mononuclear leucocyte; in fact, the plasma cell is possibly nothing more than a slightly altered large mononuclear leucocyte, and is probably a young cell, because of its basic staining reaction. It may be either directly derived from the mononuclear cells or differentiated in the process of their formation from the perithelium and endothelium. It seems to me impossible that the plasma cell can be, as is stated by Unna, derived from the fixed connective-tissue cell for reasons already given.

The great importance of these cells in conjunctival disease is that, if they are formed, they show the situations in which disease is present by disintegrating in that area; and, conversely, by their presence they show the local immunity of the area in which they are found, for if we look at sections from ophthalmia neonatorum of some duration we find the deeper tissue packed with plasma cells, whilst directly beneath the epithelium, which is known to contain the organisms producing the disease, plasma cells are absent. Between these two areas, one consisting almost wholly of plasma cells and the other having practically none, we find plasma cells in every stage of disintegration. In the follicles of the so-called follicular conjunctivitis (normal lymphoid tissue) they are present in large numbers, whilst in the trachomatous follicle they are broken up. Again, in the bulbar conjunctiva of trachoma, which is admittedly not affected with the disease, they are present in large numbers, but as the limbus is approached they decrease and disintegrate, and in the diseased follicle at the limbus they are absent. Again, in wounds of the conjunctiva they appear in 12 hours, simultaneously with the comparative cessation of exudation of polynuclear leucocytes—that is to say, that the wound has become at that time locally immune from any organism it may contain if not acutely septic. Around a phlyctenule very few plasma cells are found, in connexion with which fact we note that phlyctenulæ constantly recur in the same situation.

The endothelial and perithelial cells, as well as being the probable origin of the mononuclear leucocytes and plasma cells, are strongly phagocytic, for it is seen that they take up the particles of silver oxide in argyrosis and also polynuclear and mononuclear leucocytes and plasma cells which within these cells undergo a process of digestion. They are so numerous in resolving follicles that it would seem they may account largely for the disappearance of the exudation after the cause of the inflammation is removed. No doubt also the disappearance of the exudation is assisted by the return of a certain proportion of its cells into the blood stream and the lymphatic vessels; but the whole subject of resolution and organisation is too vast to be treated here and belongs rather to the realm of general pathology than to that of the special pathology of the conjunctiva.

THE NATURE AND TREATMENT OF EPILEPSY.[1]

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IN bringing before your notice this evening some considerations upon the nature and treatment of epilepsy I am aware that I am referring to a malady which has been carefully and elaborately studied since the time of Hippocrates. The mere mention of this fact is a reason for its further study as there is a perennial interest attached to a disease so frequent in its occurrence, so graphic in its manifestations, and so intractable to treatment. Our knowledge of the mechanism of convulsions was enormously widened a generation or more ago by the elaborate physiological investigations upon the functions of the cerebral cortex but it seems to me as if the detailed study of convulsions which these investigations initiated had somewhat detracted from the more general study of epilepsy as a morbid entity, in which convulsions form only one, though an important, symptom.

It is only during the last decade that more attention has been paid to the chemical physiology of epilepsy, through a study of the fluids and secretions of the body, from which interesting and suggestive information has been obtained. From the use of finer means of staining nerve cells and their processes, from a more intimate knowledge of the association tracts in the central nervous system, and from the study of statistical data, afforded by the accumulation of epileptics in special institutions, facts have been obtained bearing upon the natural history of the disease which previously were difficult to ascertain.

It is not proposed to do more than refer to the classical fit, well known to all physicians and described in detail in textbooks on medicine. But I cannot refrain from quoting a graphic account of the grand mal seizure given by Lucretius,[2] a writer who has been able to cloak with poetical feeling one of the most gruesome sights within our knowledge. Writing some twenty centuries ago he thus describes an epileptic seizure:—

> "Oft, too, some wretch, before our startled sight,
> Struck as with lightning, by some keen disease,
> Drops sudden: By the dread attack o'erpowered
> He foams, he groans, he trembles, and he faints;
> Now rigid, now convulsed, his labouring lungs
> Heave quick, and quivers each exhausted limb.
> Spread through the frame, so deep the dire disease
> Perturbs his spirit; as the briny main
> Foams through each wave beneath the tempest's ire.
> He groans since every member smarts with pain,
> And from his inmost breast, with wontless toil,
> Confused and harsh, articulation springs.
> He raves since soul and spirit are alike
> Disturbed throughout, and severed each from each
> As urged above distracted by the bane.
> But when at length the morbid cause declines,
> And the fermenting humours from the heart
> Flow back—with staggering foot first treads,
> Led gradual on to intellect and strength."

We readily recognise in this description the main elements of the major seizure: the sudden onset, the fall, the epileptic cry, and the loss of consciousness, the tonic followed by the clonic convulsions, and the stertorous breathing. Then ensues the period during which the whole body is swept by the convulsion so that death seems imminent. Now follow a return to consciousness, with attempts to move and to speak, and the termination of the fit.

Although this is the common manifestation of epilepsy there are also seen the minor or petit mal attacks in which consciousness is more or less obscured with or without slight motor spasm. Of these two types of seizure, the commonest and the most frequently met with as the only epileptic manifestation is the major fit, then comes a combination of

[1] A paper read before the Leicester Medical Society on Feb. 8th, 1905.
[2] Quoted from Peterson: National Association for the Study of Epilepsy, 1901, p. 11.

the major and minor attacks, and least frequently the petit mal occurring alone.[3]

Epileptic equivalents.—Although these two types may be described as the classical manifestations of epilepsy there are other clinical phenomena sometimes met with in epileptics, at other times as independent symptoms, which stand in close relation to the psychical condition underlying epilepsy. The phenomena about to be described present many points of interest, are of rarer occurrence than true epilepsy, and are more difficult to diagnose. Owing to the peculiar character of the phenomena, which occasionally partake of the nature of misdemeanour or even of crime, epilepsy is brought within the range of legal medicine. I refer to the phenomena known as psychical epilepsy or psychical epileptic equivalents. By epileptic equivalents are designated certain states of consciousness "differing not only from normal consciousness but from the state of consciousness that usually occurs in epileptic attacks" (Peterson). The term really signifies a psychical state that in some degree takes the place of an epileptic seizure. Assuming this to be the true interpretation of the term "equivalent" it would be an error to regard psychical epilepsy and its analogues as sequelæ of attacks which were either so slight or so transitory as to have passed unobserved. It is therefore necessary to distinguish between post-paroxysmal psychoses, or mental phenomena following convulsive seizures, and psychical epileptic equivalents or phenomena taking the place of ordinary fits. This is not often an easy matter unless one is acquainted with the history of the patient which is frequently difficult to obtain in the circumstances in which he is seen.

The following characters may be accepted as sufficient reason for regarding psychical clinical manifestations as epileptic equivalents: (1) the occurrence in the family history of similar or allied conditions, interchangeable with forms of genuine epilepsy; (2) their association in the same person with the classical types of epilepsy; and (3) the existence of definitely epileptic characteristics, such as sudden onset, transitory duration, and irregular periodicity.

Perhaps the best known and certainly the most striking form of epileptic equivalent is that which is described as "automatic wandering" or epileptic ambulatory automatism. A number of such cases have been recorded but I may best illustrate the condition by referring to one which has come under my own observation.

The patient, a married man, about 40 years of age, after some prodromal irritability and a few days' severe headache, lost all knowledge of his surroundings for a period of ten days, during which time he carried out some of his ordinary duties, called upon his brother on one occasion, and then disappeared from his home in London. He had no recollection of anything until he came to himself again in Hull, where he applied to the police for assistance. During these ten days he had been seen by his wife, his brother, and a friend, none of whom noticed that he was different from his usual condition except that he seemed quieter and had a dazed appearance. He answered questions satisfactorily. He had no recollection as to how he journeyed from London to Hull or where he had spent the two nights after his departure from London. He had disposed of some of the money he had with him but his watch and other contents of his pockets were untouched. He had never had an epileptic fit although at times he said he had "felt queer." He had, however, been subject to periodic headaches. His little daughter has had chorea and his brother, who has also been a patient, has had an epileptic fit and a brief attack of acute delusional insanity requiring restraint.

The main feature of the epileptic ambulatory automatism is the existence of acts of an apparently purposive character with entire oblivion on the part of the patient. The condition more closely resembles the somnambulistic state than any other; so much so, indeed, that *some states of somnambulism in adults* appear to be epileptic in character. These attacks usually occur only at rare intervals and are of great practical importance from the medico-legal standpoint. Psychologically they are amongst the most interesting of the epileptic manifestations.

I believe that the condition known as *narcolepsy* or periodic falling asleep should also be regarded as an epileptic equivalent. It is not a common phenomenon but a few cases have been under my observation. In one case in particular attacks of falling off to sleep lasting from one to five minutes were interchangeable with what appeared to be petit mal seizures. A brother of the patient suffered from a similar malady and a sister was subject to epileptic fits.

The close relation which exists in some cases between epilepsy and migraine leads me to the belief that *some forms of migraine* should be classified as epileptic equivalents. The points to which reference may be made are the frequency of migraine amongst the ancestry of epileptics, the presence of periodic headache in those who are subject to epileptic seizures, and the not uncommon substitution of migrainous attacks in youth by epileptic fits in later years. Some writers, while admitting the not infrequent combination of the two phenomena in the same person, deny their identity, laying stress upon the mental deterioration which occurs in epilepsy but not in migraine. It will be shown that the mental impairment found in epilepsy is a symptom of the disease in the same way as are the convulsive attacks, whilst in the aberrant types of epilepsy or epileptic equivalents now under consideration mental enfeeblement is characteristically unobtrusive.

Before leaving this part of the subject a brief reference may be made to the question as to whether epilepsy may occur without loss of consciousness. It is well known that localised convulsions or Jacksonian epilepsy indicating focal irritation of the cortical motor region may occur without this phenomenon. In epileptic vertigo consciousness is impaired to only a slight extent. It is not unlikely that some forms of abortive epilepsy in which only the aura is present may be unaccompanied by loss of consciousness, but in these cases there will be found evidence of other attacks in which consciousness is obviously lost. There is a form of attack characterised by sudden jerks or jumps, so violent as to cause a fall or to make the patient drop suddenly what he may be carrying which may be unaccompanied by unconsciousness, but these rarely occur alone, being usually interparoxysmal motor phenomena. I do not think, therefore, it is legitimate to diagnose epilepsy unless there is evidence of loss or impairment of consciousness, although, as already shown, some incomplete epileptic manifestations may be unaccompanied by loss of consciousness.

The interparoxysmal mental state.—In addition to convulsions, "sensations," "faints," and giddiness, epileptics present, as a rule, some mental impairment, but whether the mental condition is an integral part of the disease or is a consequence of the seizures has been a subject of discussion.

The mental states found in epileptics are, as a rule, described under two heads: first, those which are incidental to the seizures and form the pre- and post-paroxysmal psychoses; and secondly, the interparoxysmal mental state. It is the latter condition alone which should be regarded as the typical epileptic mental attitude. The general features of this condition consist primarily and most commonly of a defect of memory, more especially for recent events. This defect of memory constitutes the first grade of epileptic dementia and was found as the only mental impairment in about 31 per cent. of the cases. The second class embraces those in whom, in addition to the impaired memory, there are defective power of initiation and capacity for work. These epileptics are slow in comprehension and often lazy; many of them are also irritable and passionate. Then follows the third class, containing those who present the most typical features of epileptic dementia. Although not legally insane they require supervision.

I have elsewhere[4] attempted to show that the interparoxysmal mental condition found in epileptics is not wholly a direct consequence of the seizures, but is an expression of the same hereditary degenerative constitution which gives rise to the convulsions, for the following reasons:—

1. A strong hereditary disposition to epilepsy or insanity favours the production of the severer types of dementia and the establishment of the disease as a confirmed malady.

2. Although the duration of the disease is a potent factor in determining the mental state its influence is incidental to, rather than causative of, dementia, for we may meet with a fair degree of mental integrity even after the fits have persisted for over 50 years.

3. The age at the onset of the convulsions influences to some extent the mental condition, for the earlier the onset of the disease, especially during infancy and childhood, the

[3] Of 189 cases of epilepsy, 106, or 56 per cent., were of grand mal type alone; 66, or 34 per cent., showed the combined grand and petit mal seizures; and 17, or 8 per cent., were of petit mal type.

[4] Transactions of the Royal Medical and Chirurgical Society, vol. lxxxvii.

less the probability of an unimpaired mental state and the greater the tendency towards chronicity.

4. Upon the character and type of the seizures depends to some extent the degree of mental impairment. But dementia is inversely associated with the severity of the attacks, for the minor, or petit mal, seizures are more frequently found along with mental failure than the major convulsions. But it is with the combination of the major and minor attacks in the same person that we find the profoundest degrees of dementia and consequently the severest type of the disease.

5. If the severity of the disease in any given case of epilepsy is gauged by the frequency and character-combination of the fits, then it is found that the severer the disease the greater the tendency towards dementia. For it is a well-recognised clinical fact that attacks which recur daily, or weekly, are rarely either the major or minor fits alone, but a combination of the two with the minor variety the more obtrusive.

The close relation which exists between mental disability and facial expression is nowhere more readily seen and studied than in cases of confirmed epilepsy. So characteristic indeed is the facial expression in many epileptics, that the term "facies epileptica" has been applied to it. The existence of this has been denied by some writers who look upon it as merely a combination of mental dulness with the scars of bromide acne (Spratling). But I do not think it can be denied that in addition to the dulness and heaviness, combined with an emotional immobility, there is superadded a peculiar expression, difficult to define but readily recognised, which stamps the individual as an epileptic. I have seen the epileptic face associated with the slighter as well as the more profound degrees of dementia, and there is also a very small percentage of epileptics with normal mental attitude in whom this feature is present. I look upon the facies epileptica as a stigma of the degenerative neurosis producing the disease, of which convulsions and mental failure are further symptoms.

Stigmata of degeneration.—Having in the above manner shown that epilepsy is manifested clinically by a series of phenomena other than the classical epileptic fits, and that the impairment of the memory and of the mind should be regarded as integral parts of the disease, I propose now to discuss briefly the question as to who are epileptics—in other words, Are we able to recognise by any anatomical signs the subjects of this disease? The answer to the question lies in the study of what are known as stigmata of degeneration. Stigmata are primarily structural deviations from the normal, arising during the periods of growth and development, in those who are the subjects of a hereditary degenerative predisposition. Many forms of structural stigmata have been described, but it is scarcely necessary to do more than detail the developmental deformities of the face and cranium.

One of the commonest and at the same time most characteristic stigmata is seen in facial asymmetry and deformity. Included in this are inequalities of the two sides of the face in whole or in part, irregularities of the nose not arising from traumatic causes, prognathism, and feeble or arrested development of the lower jaw. Facial asymmetry was found in 42 per cent. of the cases of epilepsy in which these phenomena were studied. Another well-known stigma is found in the various degrees of deformity of the hard palate. The two chief defects of the hard palate are the high or narrow palate, termed by Clouston[5] the "neurotic" palate, and the deformed palate, characterised by a high, narrow, keel-shaped and somewhat irregular vault. These deformities of the hard palate were found in 46 per cent. of the epileptics under observation. Although the relationship between the shape of the hard palate, the formation of the base of the skull, and brain development would appear to be fairly clear and generally recognised, it is less easy to understand the connexion between the ears and the brain growth. Yet the external ear presents a constant and fruitful field for the study of neuropathic stigmata. Aural stigmata are to be seen in ugly ears, in excessive conchoidal development, in deformities of the antihelix, in abnormal size or shape of ears, and in asymmetrical ears. 33 per cent. of the cases of epilepsy showed one or other form of aural stigmata.

There are numerous other forms of structural stigmata which it is scarcely necessary to particularise, but mention may be made of anomalies and displacements of the teeth, of irregularities in the size and shape of the limbs, in webbing of the fingers and toes, and probably also in high errors of refraction. Stammering has been described as a stigma and its not uncommon existence in epileptics is of importance in this connexion. Of 100 epileptics who were examined as to the presence of structural stigmata of degeneration, 75 per cent. presented well-marked evidence of such. The proportion of males exhibiting neuropathic stigmata is considerably greater than the females.

If inquiry is directed into the relation between the structural stigmata of degeneration and some points in the clinical history of the disease it will be found that there is a close relation between them and the age at onset of the convulsions. Of the two quinquennial periods in which the onset of epilepsy is most common, that from birth to five years is the most fruitful in the production of stigmata. It is during this period that the growth and development of the brain is most active; it is during this period also that numerous other hereditary degenerative neuroses appear, such as stammering, backwardness in walking and talking, delayed dentition, deaf-mutism, and some forms of idiocy and imbecility. There is also a close relation between the presence of stigmata and the degree of mental impairment; the more pronounced the mental enfeeblement the more frequent the evidence of structural degeneration. From all these facts it is obvious that in epilepsy we have a degenerative neurosis indicated by the presence of stigmata as structural evidence of a hereditary neuropathic constitution.

Thus far reference has been confined to stigmata of degeneration as affecting certain portions of the body, chiefly the head and face, of a structural character, but I will now direct your attention for one moment to certain microscopical features of the brain which show that this organ itself has stamped upon it characters in which there may be detected evidence of a hereditary degenerative disposition. Among the cellular cortical changes which may be said to indicate defective cerebral development are: 1. Persistence of the cells of the subcortical layer, as pointed out by Roncoroni to exist in the brains of criminals, imbeciles, and epileptics. 2. Persistence of nerve cells in the first or outermost layer of the cerebral cortex. 3. The retention of embryonic characters in individual cortical cells, observable especially in the Betz or large pyramidal cells of the Rolandic area. These characters are a well-formed border of Nissl bodies, the centre of the cell being small and granular, the nucleus clear and plump, but situated peripherally. This feature is not uncommon in high-grade imbeciles, but my friend Dr. John Turner tells me that he has found this type of Betz cells in 17 out of 22 epileptic brains which he has examined. By these means I have endeavoured to show that epilepsy is a morbid condition, characterised clinically by a series of well-recognised and readily detected manifestations, in addition to the classical convulsions or fits, and that these phenomena are to be found in persons whose bodies and brains (in the majority of cases) show well-defined anatomical deformities or stigmata which indicate the existence of an inherited degenerative predisposition.

It may, however, be said that a hereditary history of mental disease or of epilepsy in the ancestry is not sufficiently universal amongst epileptics to warrant this statement. My own statistics from 1000 cases of epilepsy, both hospital and private, give in this connexion a percentage of 57·7 private cases with a family history of insanity or epilepsy, a similar history being only found in 24·2 per cent. of the hospital patients. There can be no doubt that these figures are considerably below what is actually the case, the enormous difference between the hospital and the private cases being sufficient evidence of the extent to which hereditary factors are either forgotten or unknown.

It now becomes necessary to inquire, if possible, into the exciting cause of the fits which recur in persons whose nervous systems are hereditarily and structurally predisposed to epilepsy. And in the first place let us inquire into the pathological features, if any, which are observed in the brains of persons dying from epilepsy.

Pathological changes in the brain in epilepsy.—The pathological changes underlying the phenomena of epilepsy have been the subject of an immense amount of investigation and almost every possible lesion of the brain has been credited with being the cause of fits. I might refer more particularly to sclerosis of the cornu Ammonis as one of the best established and most frequent of the gross changes found in the brains

[5] Clouston: The Neurosis of Development, Edinburgh, 1891.

of epileptics. According to Féré[6] this is merely a local expression of a general sclerotic change found throughout the cerebrum. The observations of Chaslin,[7] Alzheimer,[8] and others point to an extensive increase in the neuroglial tissue, although Binswanger[9] has contended against the constant presence of a cortical gliosis except in cases of old-standing epilepsy with well-marked mental deterioration. Small cystic tumours and angiomata have also been described as of not infrequent occurrence and having a definitely causative influence in the production of epileptic seizures. In senile epilepsy general arterio-sclerosis is common and may cause seizures by starving the cortex of blood and by the production of small thrombotic occlusions. In status epilepticus multiple punctate hæmorrhages are usual and have been credited with the cause of this condition. Whatever may be the nature of the lesion it is generally admitted that the seat of epileptic seizures is primarily the cerebral cortex.

The recent investigations of Clarke and Prout[10] have shown that the most striking changes are seen in the sensory cells of the second cortical layer. They have found these cells swollen and undergoing the usual chromatolytic changes indicative of a functional or nutritional alteration. In addition there was a marked neuroglial overgrowth, more especially of the outer cortical layers. In their view the essential phenomena of the disease are sensory in character, the motor manifestations being secondary. With a view to a further investigation of the pathological changes found in the brains of epileptics, and not having the material for such examinations at my disposal, I have asked my friend Dr. John Turner, of the Essex County Asylum, to conduct them and he has permitted me to make a preliminary communication upon what he has found and to show some illustrative lantern slides. The phenomena which he has observed consist in the formation of coagula in the veins, capillaries and arterioles of the cerebrum and cerebellum. The clots appear to be formed by the accumulation, and eventually amalgamation, of blood plates. Suitable reagents show that the coagula contain phosphorus probably as a constituent of their nucleo-proteid. These clots eventually undergo a degenerative change and in process of time become absorbed. The chief consequence of these thromboses, which are extensive and readily recognised, is to deprive the cortical grey matter of the arterial blood necessary for its proper function and to produce a condition of blood stasis. If the coagulation and obstruction occur in the veins, as is commonly the case, the same result is brought about as if it occurred in the arterioles—viz., arrest of the arterial blood-supply to the affected cortical area. The occlusion may be either partial or complete. If the latter distension of the vessel proximal to the obstruction may ensue, with the result that small hæmorrhagic extravasations take place either into the cerebral tissue or the perivascular sheath. These are no doubt the small hæmorrhages long ago described by Hughlings Jackson which have been seen in the brains of persons dying in status epilepticus. The nutrient artery of the cornu Ammonis is a common seat for thrombosis. It is shown that the coagula are not passive processes occurring during a moribund condition, as they exhibit vital phenomena, whereby blood-vessels are blocked and hæmorrhages occur. Apparently, as a result of the deprivation of arterial blood, produced in the manner described, the large pyramidal or Betz cells show charactistic changes. Such are mainly seen in a large swollen and clear nucleus. These changes were very similar to what has been described by Mott,[11] from the experiments performed by Hill upon ligature of the carotid arteries in dogs. It may naturally be asked what evidence is there that these thromboses do not take place in consequence of the convulsions. The reply to this lies in the fact that such thromboses are found in persons who have not necessarily died in status epilepticus and it would also appear that unless the obstruction is complete convulsions do not ensue.

The essential feature for the development of convulsions would appear to be *deprivation of arterial blood, coinciding with capillary and venous stasis, from cortical motor areas.* In the Kussmaul-Tenner experiments convulsions were produced as a direct consequence of ligature of the innominate arteries, the spasms stopping upon the release of the ligature. Leonard Hill[12] in his work upon the "Cerebral Circulation" states that he produced unilateral clonic spasms by digital compression of one carotid artery, the spasms being similar to those seen in Jacksonian epilepsy. Convulsions may also be produced, but less quickly, by experimental ligature of veins. Hill refers to the experiments of Hermann and Esher, who obtained convulsions by ligaturing the superior vena cava and azygos veins. Further reference to Hill's work makes it clear that there is no evidence of constrictor spasm of the cerebral blood-vessels in epilepsy. He writes: "Every experimental method employed to detect vaso-constriction failed and therefore the cerebral vaso-motor spasm theory of epilepsy and convulsions must be withdrawn from pathology.[13] ..... As to the dependence of idiopathic epilepsy on cerebral anæmia, whether produced by poison or diminution of blood flow, there is no experimental evidence."[14] I submit, however, that the recent pathological investigations of Dr. John Turner have suggested a highly probable and not unlikely cause of epileptic convulsions in local arterio-capillary thrombosis and venous stasis. I am led to accept this view tentatively as a possible explanation of epileptic fits in general, from a consideration of some circumstances in which these seizures are prone to occur. First, the marked frequency of epileptic fits at night, especially during the hours of deepest sleep, immediately after falling off to sleep and an hour or two before waking, when the cerebral blood pressure is at its lowest and capillary stasis is most likely to ensue. Secondly, the frequency of epileptic seizures in association with acute inflammatory diseases, such as pneumonia, enteric fever, and scarlet fever, in which there are an increased coagulability of the blood and a tendency to venous thrombosis. In this category also may be placed the puerperium—a period which is notoriously prone for the incidence of epileptic fits.

A brief reference may here be made to the examination of the cerebro-spinal fluid in epilepsy. Cholin, one of the products of lecithin disintegration, has been found here. Donath[15] found it present in 15 out of 18 cases of epilepsy. It has also been found in diseases of the cerebro-spinal system in which there is clear evidence of the breaking up of nerve tissue, such as general paralysis of the insane and tabes dorsalis.

Chemical pathology.—Owing to the apparent insufficiency of the pathological changes found in the brains of epileptics to form a satisfactory explanation of the epileptic phenomena, a school of observers, more particularly in France, broke new ground in their endeavour to find the exciting cause of epileptic attacks in biochemical changes. Much of the most recent work upon epilepsy has been done in this line and numerous researches during the last decade have added largely to our knowledge. The general results of these investigations are of a confusing and contradictory character but a brief *résumé* of the chief points may not be out of place.

Although the toxicity of the urine in epilepsy had been the subject of some investigation prior to the work of Voisin[16] it is mainly by this author and his associates that the intoxication theory of epilepsy was elaborated. Voisin showed that immediately prior to a fit there was urinary hypotoxicity, gauged by injections into rabbits; that during the attacks the toxicity rose and reached a point considerably above normal after the fit (hypertoxicity). During the interparoxysmal periods the toxicity was comparable to that of normal persons. On these observations Voisin based his theory of the pre-paroxysmal hypertoxicity of the blood, which gave rise to certain definite symptoms, by the aid of which the onset of a fit could be foretold. After the fit came the hypertoxic condition of the urine and the clearance from the blood of toxic substances. Assuming these observations to be correct, a plausible and seemingly satisfactory explanation of serial epilepsy and the status epilepticus was at hand, but subsequent investigations by Hebold and Bratz, Roncoroni, and others have failed to find the urine of epileptics more toxic than that of health. The general result of the investigations upon the toxicity of the blood in epileptics is also negative, the researches of Mairet and Vires,

[6] Féré: Les Epilepsies et les Epileptiques, 1890, p. 442.
[7] Chaslin: Comptes Rendus de la Société de Biologie, 1889, p. 169.
[8] Alzheimer: Monatschrift für Psychiatrie und Neurologie, Band II., S. 2, 1897.
[9] Binswanger Epilepsie, Nothnagel's Specielle Therapie, &c., p. 372.
[10] Clarke and Prout: Spratling's Epilepsy, p. 325.
[11] Mott: Croonian Lectures on Degeneration of the Neurone, 1900, pp. 40-41.
[12] L. Hill: The Cerebral Circulation, London, 1896, p. 142.
[13] Hill: Op. cit., p. 145.
[14] Ibid., p. 148.
[15] Donath: Referred to by Mott, Brit. Med. Jour., 1904, vol. ii., p. 1557.
[16] J. Voisin and Peron: Archives de Neurologie, vol. xxiv., p. 178.

Hebold and Bratz, and Herter having failed to obtain any positive or constant results from the injection of epileptic blood serum into rabbits.

From the study of blood toxicity we may turn briefly to the reaction of the blood in epilepsy. Haig suggested that there was a definite relation between excess of uric acid in the blood and such maladies as migraine and epilepsy; but treatment directed upon this theory has not proved of greater value than other methods of treatment conducted along conventional lines. Somewhat similar to the uric acid theory is the view of Krainsky[17] who propounds the doctrine that uric acid is not the toxic agent but a derivative in the form of ammonium carbamate, a substance having a convulsion-producing character as testified by its injection into rabbits. Pugh[18] has found a sudden fall in blood alkalinity immediately prior to a fit and a further diminution in the alkalinity after the convulsion, the average interparoxysmal alkalinity being lower than the average of normal cases.

The general conclusion to be derived from a study of the researches upon the blood in epileptics is that prior to a convulsive attack or series of attacks there is a diminution in the blood alkalinity, but whether this arises from retention of uric acid (Haig), from formation of carbamic acid (Krainsky), or from the presence of acid toxins as yet of undetermined nature and source, remains unproven. The stage of diminished alkalinity would correspond to the preparoxysmal period of clinical observers—a period characterised in some cases by mental phenomena such as irritability, lethargy, depression, and occasionally delusional states, and in other, though rarer, instances by an unusual sensation of well-being. It is not to be supposed that such symptoms are invariably present or are characteristic of all forms of epileptic seizure. They are found more especially in serial epilepsy—that is, epilepsy shown by frequently recurring fits for a few days, to be followed by an interval of freedom of greater or less duration; in cases in which two or three fits occur at a time; or in cases the type of which is an occasional severe convulsive attack. They are not present, so far as I am aware, in the petit mal type of the disease.

Treatment.—It will be readily seen from the foregoing remarks that the scientific treatment of epilepsy should consist in more than an endeavour to subdue the convulsive element of the disease by drugs. As it is impossible in this country to legislate against the marriage of epileptics and defective persons we shall, I suppose, always have epileptics with us. It is not possible in the limits of time at my disposal to do more than mention the special attention necessary in the upbringing of children predisposed to epilepsy, the particular lines along which their education should be conducted, the treatment of confirmed epileptics in institutions or colonies, and the regulation and direction of their work under supervision.

The remarks upon treatment will therefore be confined to the subjection of the seizures. At the outset it may be stated that there is no single specific remedy in the treatment of epileptic fits although the bromides come nearest to this definition. The influence of the bromide salts upon epileptic fits is variable. In the first place, bromide medication may arrest the seizures immediately or within a brief period of their administration. Under this heading are found the curable types of epilepsy, cases characterised by an absence of mental impairment and with fits recurring at long intervals—in fact, a mild type of the disease. If any given case is capable of arrest by treatment a satisfactory response will be apparent within a short period of the commencement of bromide treatment. Of 86 cases in which the fits were arrested for periods varying from two and a half to 25 years, rather more than 50 per cent. yielded to treatment within the first 12 months of regular bromide medication. Secondly, the bromides may induce a marked lessening in severity and frequency of seizures without their complete arrest. This is the common result of bromide treatment and is what may confidently be expected in the majority of cases in the early stages of the disease. Thirdly, the bromides may change the time incidence of the seizures, converting nocturnal into diurnal attacks or *vice versâ*. Fourthly, the bromides may exert no influence at all or may even make the attacks worse.

Bromide treatment should be commenced at the earliest possible time after the onset of the fits, as there is a greater prospect of arrest or improvement during the first five than during the second five years of the disease, although arrest of fits may occur after a duration of from 20 or 30 years. The administration of the bromides should be continued for a period the duration of which is to be determined by a study of each case separately but should not be less than two years. The dose usually given is, I think, too large. If benefit does not follow a daily dose of from 45 to 60 grains of one, or a combination, of the bromide salts, some other remedy or method of treatment should be sought. The large doses prescribed on the continent, from 75 to 150 grains daily, although no doubt suppressing the seizures for a time induce other and more serious phenomena. It has been shown that daily doses of from 150 to 200 grains of bromide salt produced slurring articulation, lassitude, and mental dulness, with abolition of the palatal and pharyngeal reflexes. Moreover, the bromides have an accumulative action. Laudenheimer[19] has proved that an epileptic taking ten grammes of bromide salt daily for eight days only excreted 35 grammes during that period. The blunting influence of the bromides upon the cortical motor cells has also been demonstrated by the fact that a considerably stronger electrical current is required to excite the cortical motor areas of dogs which have been dosed by bromide of potassium.

In confirmed epilepsy with mental deterioration all that can be expected from the continuous use of the bromides is diminution in the number and perhaps in the severity of the seizures. The daily 30-grain dose of bromide of potassium was stopped entirely for a month in each epileptic in a house at the colony for epileptics containing 24 patients, with the result that the total number of fits during the month rose from 278 to 402. The mental condition showed no material change.

Of the influence of the bromides upon the several types of epileptic fit it may be said that the grand mal seizure is that most amenable to their influence, the petit mal attacks and psychical equivalents being little influenced. In serial epilepsy and the status epilepticus, chloral in combination with the bromides forms the most effective remedy, while in the post-paroxysmal psychoses the bromides are of little service.

Various modifications of the bromides have been introduced of recent years. Bromipin being difficult to dispense and costly has not in my hands met with much success; bromocarpin has been especially advocated in the forms of seizure arising from intestinal auto-intoxication. Borax has been strongly recommended by some authorities. Unless in combination with the bromides I have not found it of great use, although a combination of borax and digitalis has been found serviceable in some cases of minor epilepsy. Belladonna is a remedy which should be tried in all cases in which the bromides have failed. Every now and again a case will be met with in which this drug produces remarkable and persistent arrest of the seizures.

A modification of the bromide treatment is to be found in the *opium-bromide therapy* recommended by Flechsig about 12 years ago.[20] The principle of the treatment lies in the preparation of the nervous system for subsequent bromide medication by a preliminary administration of opium. One of the preparations of opium, preferably the extract, is given for a period of six weeks in increasing doses up to 15 grains per diem, when it is suddenly stopped and large doses of bromide salt, from 90 to 120 grains, are substituted, this large dose being gradually diminished until about 30 grains are taken daily. The most favourable cases for its administration are young epileptics before or about puberty and epilepsy in the early stages. Confirmed epileptics and those with pronounced psychical degeneration are not materially benefited. Some authors speak very highly of the method, more especially Binswanger and his pupils, while others have not found its advantages outweigh its dangers. My own experience of the method has been limited and not satisfactory.

Various forms of *organo-therapy* have been suggested and tried in epilepsy. Of these thyroid administration was at one time strongly advocated, more with a view to counteract mental deterioration than as a subduer of convulsions. In a number of cases of confirmed epilepsy in which preparations of the thyroid gland were given over considerable periods, no appreciable result was detected either in the mental condition or in the frequency or severity of the fits. The administration of cerebrin also did not lead to any results which warranted its further or more protracted use.

[17] Krainsky: Abstract in Neurologisches Centralblatt, 1902, p. 16.
[18] Pugh: Brain, 1902, p. 100.
[19] Laudenheimer, referred to in Binswanger, op. cit.
[20] Flechsig: Neurologisches Centralblatt, 1893, p. 229.

The observation that a large and persistent thymus gland is found in cases of epilepsy in young persons has led to the view that the secretion of this gland may have some influence in the production of epileptic seizures, a view which appears to have some corroboration in the fact that the administration of preparations of this gland have materially aggravated the condition.[21]

"*Salt starvation.*"—Of the several forms of diet recommended in epilepsy I have found that of salt starvation or "dechloridation" the most satisfactory. The suggestion of substituting the salts of chlorine by the bromide preparations is due to Toulouse and Richet, who recommended a diet in which the total quantity of sodium chloride per diem was limited to one or two grammes. It was thought that by diminishing the chlorides in the food the bromides might be given in smaller doses and various writers have found the method useful. The dietary which has been found most serviceable consists of milk, fresh butter, eggs, fruit, vegetables, and bread, all salt being as far as possible eliminated. The general results which were observed from the administration of the saltless diet in a number of cases of confirmed epilepsy were briefly as follows.[22] There are some cases in which the number of attacks is diminished during the continuance of the treatment and others in which the improvement has lasted after the diet has been stopped. These are the cases in which the bromides are not well borne or are even deleterious. The mental condition also has shown some improvement. The chief disadvantage of the diet is its monotonous character, but as a relief to dyspeptic symptoms it has been found distinctly useful. The chief feature of the method lies in the diminution of the bromide dose, from 20 to 30 grains of one of these salts at bedtime being sufficient.

Immunisation (Ceni's method[23]).—The idea of rendering epileptics immune to their fits, either by the injection of blood serum from one epileptic to another or by reinjecting into patients the blood serum which had been previously withdrawn from them, is due to Ceni. The theory upon which this method is based is determined by the belief in the existence of a toxic biochemical substance in the blood serum of epileptics. From his experiments Ceni concluded that there are two active principles in the blood of epileptics, one circulating in a free state and possessing toxic properties, the other in a latent state, having a stimulating action upon the elaboration of the toxic agents. The practical utility of this method in the treatment of epilepsy, even in the hands of its originator, has not been sufficiently satisfactory as to render its application general, while later investigations, more especially at the hands of Sala and Rossi,[24] have failed to confirm the original results.

In conclusion, I wish to emphasise the fact that the medicinal treatment of the convulsions forms only one item in the treatment of epilepsy. To my mind the most satisfactory management of the disease is that which is carried out in special institutions or under the care of a well-trained and sensible nurse attendant. In this way only can the patient be guided along hygienic lines, in respect of the suitable quantity and quality of food, the proper allotment of work and rest, and the carrying out of those physical exercises consistent with the malady. Epileptics suffer notoriously from lowered vitality and sluggish circulation in the extremities for which warm baths, spinal douches, and massage are important remedial agents. In the treatment of epilepsy, therefore, there has ever to be kept in mind the persistent character of the malady and the tendency towards mental deterioration. As important as therapeutic remedies are congenial employment, hygienic modes of life, and suitable amusements.

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[21] Hodgson: Medical Chronicle, 1903.
[22] Review of Neurology and Psychiatry, December, 1904.
[23] Ceni: Medical News, March, 1902.
[24] Sala and Rossi: Neurologisches Centralblatt, 1903, p. 852.

DRAINAGE OF PLYMOUTH.—A Local Government Board inquiry was held at Plymouth on Feb. 28th respecting the application of the town council to borrow £65,000 for the purpose of main sewerage. This sum, together with the amounts that have been sanctioned on previous occasions, makes a total of £210,800 which has been required for the scheme. It was originally estimated that the work could be completed for £100,000.

MENTAL FACULTY IN THE CHILD: ITS GROWTH AND CULTURE.[1]

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LOOKING at an infant or a young child we may observe the indications of mental faculty and study their growth and development in much the same way as we look at any other living creature. Looking carefully at a healthy, strong, newly-born infant we see much spontaneous movement; the fingers and the toes move separately; these movements do not appear to be stimulated through the senses and at this early stage they are not controlled by sight or by sound but appear to be quite irregular in their order. This spontaneous movement, seen while the child is awake, is produced by the activity of groups of nerve cells in the brain, for these cells discharge nerve currents to the muscles and thus stimulate them to movement. We see the spontaneous movements in the child and we infer that the nerve cells of the brain are acting spontaneously. This mode of brain action is analogous to what occurs in the cellular stem of young seedlings. In these the unequal swelling and growth of the vegetable cells on successive sides of the stem produce the circumnutatory movements which subsequently become adapted by light, gravitation, or other form of stimulus into definite controlled movements, such as turning towards the light, climbing, &c., and the movements produced in this way, from the "spontaneity" of the living plant when controlled by external stimuli, are of great importance in its life-history. This spontaneity of the nerve centres of the brain is temporarily lost when the child is ill and it is not seen in the imbecile.

When observing an infant four or five months old the sight of an object, such as a red ball, may temporarily arrest the spontaneous movements, and this may by followed by the turning of the head, the eyes, and the hands in the direction of the object seen or the sound heard. It will probably be said that this is a sign of "attention" in the child and it may correctly be called a mental act; perhaps this is the earliest sign observable that can be so called. I may here remark that all visible indications of mental action are by movement or the results of movement, whether in action, speech, or writing. At this early stage of development sight or sound may so affect the brain centres as to arrest momentarily their spontaneous motor action; a pause in movement is seen lasting but the fraction of a minute, after which the infant fingers move again in a new and coördinated manner. The new action which is seen after this pause is clearly the result of control of the brain centres during the temporary absence of movement and is a further act of "attention." These facts suggest the hypothesis that during the pause in spontaneous action following a sensory stimulus functional unions are formed among the brain centres preparing them for combined action. This, then, corresponds to the second stage of mental action which may be subsequently expressed in some mode of response.

We have seen that two phenomena are characteristic of the earlier workings of the brain—namely, spontaneity and controllability; by the interaction of these two natural conditions it is possible to coördinate the brain cells through the senses by suitable methods of training. As the child grows older some attempt must be made to cultivate the mental faculty and to control his playfulness, in part at least, for a few moments while trying to produce a new impression, but it is harmful to suppress or to destroy all spontaneity of brain action and movement. After frequent repetition some impressions are retained. This leads us to consider the means at our disposal in producing impressions by brain training as growth proceeds. At an early school age, say in the kindergarten, we proceed, stage by stage, to develop such elementary mental impressions as it is intended to employ in subsequent teaching. It will be useful to consider briefly, though with careful attention, the nature of brain impressions and the means of producing them with accuracy in a well-planned method of education. Two points must be insisted on: first, a certain length of time is required for the production of a new impression in the

[1] A paper read before the Childhood Society on March 2nd, 1905.

brain, since a definite period is required for the arrangement of the nerve centres under control; and secondly, physiological impressions on the brain may be of different classes or kind as produced by various modes of sensory stimulation from without. It will suffice for our present purpose to speak of four classes of such impressions.

1. *Impressions of sight* are formed when an object is seen; light passes from the object to the eye, stimulating the retina, from which nerve currents then pass to the brain and control its nerve centres. The thing shown is seen if the child's eyes are turned towards it and an impression on the brain is produced through sight.

2. *Impressions by hearing* are produced by nerve currents from the apparatus of the internal ear when the sound vibrations of air have acted on the tympanum. This is something like the action that occurs in a telephone, where the vibrations produced by the speaker's voice start an electrical current which is conveyed to a distance.

3. *Impressions from muscular action (muscular sense).*—When a muscle contracts and produces a movement a stimulus passes upwards from the nerves of the muscle to the brain and this produces an impression which may be felt. Thus, movements produced in training the child through the senses result in some control over the nerve centres in two ways: (*a*) partly by stimulation through sight, as the child sees the teacher's movements, which sends a nerve current from the brain to the muscles; and (*b*) partly by muscular sense, an afferent stimulus passing from the muscle to the brain. The child is said to feel the movement. Exercises with the hands and fingers may be trained by sight in imitation of the teacher, while the muscular sense also produces results in the brain. When you control the eye movements the muscles which move the eyeballs act through muscular sense on the brain.[2]

4. *Impressions caused by muscular tension* produce an appreciation of weights as held in the hand. The weight held in the hand makes a strain upon the muscles; the feeling of this strain is transmitted to the brain and the weight is perceived.

In education it is important that the pupil should learn to distinguish between the size and the weight of an object and he must be taught to compare size with size and weight with weight when describing two objects, such as coins. Weights are compared by feeling muscular tension and the size of objects by muscular sense. For this reason the two senses should be exercised separately.

It is desirable in early training to produce one kind of impression only at a time and to implant it accurately and distinctly. One of the principal reasons for this is the fact that in subsequent use of the impressions for mental operations we need to establish associations between those of the same kind. The pupil must be taught weights, sizes, colours, and sounds. When teaching the use of money let the pupil see the coin, then feel its size as it lies on the table or in his hand with the fingers closed over it so that the weight is not felt; later let him feel the weight only. Subsequently he may be taught to compare coins as to colour, size, and weight and understand that the value of silver is proportional to its weight.

Another way of training the brain and directing its action without the use of words is by exercising the faculty of imitation. If the teacher holds out one hand the child will usually do the same, and when one finger is bent the pupil makes a similar movement. In this method of training the sight of the teacher's hand controls the child and the same nerve centres are brought into action in him as are employed in the teacher's brain. Useful control over the brain may thus be gained before there is much teaching by the use of words; exactness of movement is cultivated both in the time and degree of action as regulated by the teacher's intelligence; modes of brain activity may thus be established of great use in later instruction. The child who has learned to imitate his teacher's movements will learn to write on the blackboard by following the action of her hand as he sees this more easily than a copy. When the numerals have been learned their meaning and employment may be taught by movements of the eyes and hands, in which case the significance of numbers, size, and proportion is felt.

I must now pass on to speak more definitely of "culture of the mental faculty." Impressions made on the brain as planned by the teacher for future use must be associated for intellectual purposes. Comparison may be practised early. Impressions of similar sensory origin more readily adhere to one another in the brain than those of different classes. The similarity in their mode of production by sight, hearing, muscular sense, &c., and their consequent similarity in constitution cause them to be easily associated when rendered reactive under the guidance of the teacher. Nerve pathways are more easily established among like sensory impressions than among those unlike in kind. In an act of comparison we need the coactivity of two or more impressions of the same kind; a mental act of comparison is appreciation of the similarity of characters and their proportions. If the pupil has received stage by stage the early elementary training already described his brain will by this means have been prepared for mental work and he will more readily and accurately appreciate instruction such as the relative weight of coins and their value, also the significance of addition, subtraction, multiplication, and proportion.

We may now review some characters of brain development that were described in speaking of the earliest display of mental faculty and consider how they bear upon the teaching of children at school age. In the early stage of mental potentiality a sensory stimulus produces only a momentary stopping of movement; a little later in development this "still period" is followed by a new act; during the pause the brain centres are arranged by the sensory stimulus for the action which results. At more advanced stages some period of time is still occupied by a mental act. In teaching, a question should be followed by a pause on your part while the necessary arrangements are occurring in the child's brain corresponding to an act of thinking—i.e., it is useless to expect a correct answer without allowing sufficient time.

The educative effect of exercises in imitation of the teacher's planned movements has been spoken of; this and other ways of controlling the motor coördination of the brain centres are the principal means that experience has led me to adopt in directing the training of backward and feeble-brained children in whom mental faculty has to be implanted stage by stage as planned for future employment. As the growth and development of the child produce a healthy spontaneity of the nerve centres, his brain becomes capable of further organisation by impressions produced through the senses.

Much might be said as to the processes of growth and the hygienic conditions necessary to their physiological development. It has been my purpose to show something of the way in which brain training may be planned to produce impressions of different kinds and to coördinate the physiological nervous action for the culture of mental ability. Spontaneity of brain action is the foundation upon which success in educational efforts depends and this must be trained though the senses. At the same time impressions of various kinds must be produced in the child and their interaction should be controlled, stage by stage, as the means of educating mental faculty leading up to the formation of intellectual and moral character.

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[2] See The Study of Children, Chapters vii. and xi. (Macmillan).

TWO UNUSUAL OCCURRENCES IN TYPHOID FEVER: ACUTE ENCEPHALITIS AND PERFORATION OF THE SIGMOID FLEXURE.

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(From the Pathological Laboratory, Royal Victoria Hospital.)

THE following brief records of two unusual conditions occurring in typhoid fever will be of interest to practitioners.

CASE 1. *Typhoid fever; diphtheria; cerebral softening (acute encephalitis); death on the fourteenth day of the disease; post-mortem infection by bacillus aerogenes capsulatus.*—A man, aged 22 years, was admitted to Dr. Martin's service on the sixth day of the disease. The nervous system was normal. A blood count gave the following result: red cells, 4,210,000 per cubic millimetre; leucocytes, 6900 per cubic millimetre. On the seventh day he developed sore throat, a culture giving a growth of the bacillus diphtheriæ. The patient was isolated and

was given 2000 units of antidiphtheritic serum. The leucocytes numbered 7000 per cubic millimetre. On the eighth day he was drowsy with quiet delirium; rose spots were present. On the ninth day he was irrational. On the eleventh day the throat was clear of the bacillus diphtheriæ (by culture). On the thirteenth day blood culture gave a pure growth of the bacillus typhi abdominalis. The pulse was dicrotic; the spleen was palpable. The patient was semi-comatose but replied if questioned. There were much involuntary twitching of the face, especially of the lower jaw, slight twitching of the hands, and difficulty in swallowing and in protruding the tongue. On the thirteenth day the Widal reaction was present. The leucocytes numbered 6600 per cubic millimetre. On the fourteenth day he was semi-comatose and delirious. He had occasional tremor of the hands. The leucocytes numbered 9000 per cubic millimetre. Chill was noted at 10 P.M. Death occurred at midnight. The temperature varied from 100° to 104° F. The treatment consisted of baths and cold sponging.

Necropsy.—This was performed 13 hours after death and at this time the body was bloated beyond recognition by the effects of the bacillus aerogenes capsulatus which crowded all the tissues. Almost the entirety of the left temporo-sphenoidal lobe was occupied by a soft, dark red mass of softening, very definitely marked off from the surrounding tissue. Microscopical examination of the meninges over the temporo-sphenoidal lobe showed intense small-celled infiltration (localised meningitis) and all the cut vessels were thrombosed. The perivascular areas showed even greater inflammatory infiltration than elsewhere. Sections through the brain tissue itself showed much blood, no evidences of nuclei of the original tissue, and a general necrosis with hæmorrhage into its site. There were gaps in the tissue (caused by the gases formed by the bacillus aerogenes), some of the large ones being macroscopic in size. It was thought that the softening was due to embolus (followed by thrombosis) or to thrombosis, though examination of the vessels concerned gave no indication in one direction or the other. The other findings at the necropsy showed the usual lesions of typhoid fever. The ulcers were confined to the last eight feet of the ileum and were very numerous in the last three feet. All the organs showed gas bubbles. No trace of the diphtheria infection was found either by the eye or by the cultures from the fauces.

CASE 2. *Typhoid fever; perforation of the sigmoid flexure on the twenty-eighth day; operation; death on the twenty-ninth day.*—This case was from the hospital service of Dr. W. F. Hamilton and the operation was performed by Dr. A. E. Garrow, to both of whom I am indebted for permission to publish it. The patient, a man, aged 23 years, was admitted on the eighth day of the disease. The Widal reaction was positive on the ninth day. The patient was treated by baths. On the eleventh day he had abdominal pain and distension which recurred at intervals. The course was satisfactory and uneventful and on the twenty-sixth day the temperature touched the normal line. On the twenty-eighth day the abdominal pain recurred and again disappeared. On the twenty-ninth day he complained of severe pain in the lower abdomen. There were tenderness and slight distension of the whole abdomen but no rigidity. An hour later he complained of very severe pain, had rigidity and tenderness of the whole abdomen, and the diagnosis of perforation was made. Operation was performed as soon as possible. At the operation greenish-grey fluid with lymph flakes filled the abdomen and there were no adhesions. The large intestine was distended; a small perforation was found in the sigmoid flexure which was repaired. The patient died a few hours later.

Necropsy.—This showed acute general peritonitis, smears from the peritoneum exhibiting streptococci. Cultures gave streptococci and bacillus coli after 24 hours' growth. Typhoidal ulceration began in the ileum, five feet above the ileo-cæcal valve, and the last 18 inches showed many ulcers. The cæcum, ascending colon, and first few inches of the transverse colon contained over 100 ulcers. In the descending colon were four ulcers and perforation had occurred at the beginning of the sigmoid flexure 13 inches above the anus. The sigmoid flexure contained six ulcers, one of which had been reinforced by sutures. The rectum contained one ulcer.

It may be pointed out that at the operation in Case 2 there was a half turn of the sigmoid flexure upon itself, which turn may have helped to increase the distension of this part of the bowel, for the ulcers in the lower parts of the colon were not generally so deep as those in the transverse colon, which seemed from their appearance to be the oldest and the most severe.

Montreal.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF APPARENT RECOVERY FROM PRESUMABLY MALIGNANT DISEASE OF THE MOUTH.

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PHYSICIAN TO THE DEVON AND EXETER HOSPITAL.

I DESIRE to record, for what it is worth, the following very remarkable case.

The patient, who was a man, aged 53 years, consulted me on Nov. 8th, 1904, for what I diagnosed as cancer of the tongue. Till his present illness he had been a healthy man, had never had any venereal disease, is married, and his wife has had no miscarriages or still-births. One sister is said to have died from cancer and another is reported to be suffering from cancer of the breast. About six months before I saw him he began to complain of "sore-throat" on the left side which he attributed to a sharp edge of a tooth which hurt the side of his tongue. This grew worse and he began to have pain which ran up into his ear. Later still there was difficulty in opening the mouth. Just before he came to see me he had a hæmorrhage from the tongue (about a pint), followed next day by a smaller one. There had never been any discharge of pus. He said that he had lost a stone in weight. I found him unable to open his mouth more widely than just sufficient to admit my finger or to protrude his tongue except just beyond the teeth. There was a deep ragged ulcer on the left side of the tongue opposite the last molar teeth, with raised hard edges, very tender, bleeding on examination, and surrounded with much induration, which spread to the gum and anterior pillar of the fauces. He had severe pain, which sometimes amounted to agony at night, radiating to the ear. I could feel no enlarged glands in the neck. I told him that he had cancer and advised him to consult a surgeon at once. He saw four surgeons, all men well qualified to judge of such a case from extensive experience in consulting work. All four diagnosed cancer. Immediate and extensive operation was recommended. He refused this and proceeded to treat himself at home as follows. He took a handful of violet leaves and put them in a basin, pouring over them a pint of boiling water and leaving them to soak for 24 hours. At the end of that time he poured off the liquid and divided it into two equal parts. One part he drank in the next 24 hours and the other part he used for making hot fomentations which he applied continuously outside the neck on the left side for two hours every night. Sometimes he used the leaves themselves as poultices outside the neck. Sometimes he kept the fomentations on all night. He began this treatment on Nov. 10th and was so much better by Jan. 23rd, 1905, that his employers sent him to me to show himself. The change was extraordinary. He looked well His weight had gone up from 10 stones 3 pounds (on Nov. 8th) to 12 stones 7 pounds. The pain was trifling; he could open his mouth freely and protrude his tongue almost naturally. The ulcer was much reduced in size, its hardness was less, the surrounding induration was greatly reduced, and it was no longer tender or inclined to bleed. On Feb. 20th I saw him again. He had continued the violet treatment just the same since Jan. 23rd. There was almost no pain and except a hard scar very little remained of the deep ragged indurated ulcer of last November.

The violets were sometimes wild, sometimes garden-grown. He thought the latter better because they "tasted stronger." Except the violet treatment absolutely no other remedy had been used, locally or internally. The ragged teeth have not been removed. I believe the man to be absolutely honest. He has nothing to gain by deceiving me and appears only anxious that others should profit by what he considers has cured himself.

I think it will be admitted that I am justified in reporting this case. It proves nothing certainly, because the

growth was not cut so as to afford microscopic evidence, but it is most suggestive and interesting. Personally I am now advising the trial of this violet treatment in all cases of undoubted cancer which are inoperable and I will in due course publish the results. The publication of this case may possibly induce others to give a more serious trial to the so-called "violet cure" than I fancy it has hitherto received.

Exeter.

TWO CASES OF POISONING FROM THE EXTERNAL APPLICATION OF BELLADONNA OR ATROPINE.

BY VALENTINE MATTHEWS, M.R.C.S. ENG., L.S.A.,
SENIOR SURGEON TO THE WESTMINSTER GENERAL DISPENSARY.

IN the first of the cases now to be described the patient was a man, aged 53 years, who suffered from lumbago for the relief of which he applied to his loins, before going to bed, a belladonna plaster, measuring eight inches by five inches, made by a well-known firm. On waking in the morning he was confused in his ideas and complained of dryness of the throat and considerable thirst. When seen by me about midday his pupils were much dilated and his fauces were dry and red. He talked excitedly but quite coherently, saying that it was only by a considerable effort that he was able to restrain himself from talking nonsense. He had removed the plaster at the commencement of the symptoms, remembering, as he informed me subsequently, that he had on one occasion previously suffered in the same way from a similar application. He had, before using the plaster, rubbed himself with some liniment, but there was no redness or abrasion of the skin when I saw him. The symptoms, with the exception of the dilatation of the pupils which remained for a day or two, subsided by the end of the day.

The second patient was a man, aged 63 years, who suffered from chronic eczema of the nates and applied some ointment containing four grains of sulphate of atropine in the ounce once before going to bed and once again during the night. Next morning he complained of dryness of the throat and great thirst and had a frequent desire to micturate. He consulted me, complaining of these symptoms and also of much pain and discomfort in the lower part of the abdomen. He was voluble and excited, the pupils were somewhat dilated, the fauces were dry and beefy looking, and the bladder was much distended. Emptying the bladder by means of a catheter relieved the abdominal pain. The symptoms in this case also subsided by the evening but there was a frequent desire to micturate for some hours after the bladder was emptied.

The remedy in each of these cases was self prescribed.

Suffolk-street, Pall-mall, S.W.

A CASE OF COUGH DUE TO INTESTINAL WORMS

BY HERBERT C. P. MASSER, M.R.C.S. ENG., L.S.A.

THE following case may be of interest in view of the recent accounts in THE LANCET of similar instances.

A patient under my care, a woman, aged 87 years, suffered every night from intense paroxysmal cough for which I could in no way account. One morning on my visit I was shown a large specimen of ascaris lumbricoides which had travelled upwards through the naso-pharynx and was pulled out of the nose by her night attendant. After this all cough ceased. Santonin was given but no further worms were obtained.

Longford, Coventry.

ROYAL NATIONAL PENSION FUND FOR NURSES.—At the annual meeting of this society, held on March 9th last, Sir Henry Burdett, K.C.B., deputy chairman, presided and moved the adoption of the report which stated the year 1904 to be remarkable as having witnessed the issue of an exceptionally large number of pension policies, the total being 1185 as against 953 in 1903. The annuities falling due showed satisfactory progress and at the December quarter of the year these were being paid at the rate of over £12,000 per annum under 818 policies. The usefulness of the sickness branch was again exemplified by the fact that a sum of £1651 was distributed in sick pay during the year. The total funds increased during the year from £820,792 to £910,525.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Discussion on the Subsequent Course and Later History of Cases operated on for Appendicitis.

AN adjourned meeting of this society was held on March 14th, Sir R. DOUGLAS POWELL, the President, being in the chair.

Mr. HARRISON CRIPPS said that in dealing with the treatment of an acute attack of appendicitis it was necessary to consider the cause of these acute fulminating attacks. It was certain that some of them arose from ulceration and consecutive inflammation produced by a concretion, for the offending body was not uncommonly found *flagrante delicto* in the accumulated pus. But there was another and not infrequent cause to which pathologists had paid insufficient attention. This cause was inflammation or gangrene produced by a corkscrew-twist in the mesenteric attachment of the appendix giving rise to strangulation, a condition exactly similar to that which is seen in cases of twisted ovarian tumour. The clinical features of the onset and the condition found on operation were analogous. In both cases the onset of the attack was very sudden and was frequently described as a strain during some sudden exertion. The mechanism of the twist at the base could be clearly seen but in an extremely short time the twisted pedicle became so disguised by adhesion or inflammation that it could only be made out by subsequent careful dissection. No surgeon accustomed to operating on the appendix could fail to have been struck with the extraordinary position and distortion of the organ often disclosed. The appendix was often tucked away in the most extraordinary manner apparently beneath the cæcum, and when so discovered it was no longer a straight tube but acutely bent, so that the lower half lay parallel with the upper. In this position it might be only found and exposed after dissecting through what seemed to be dense adhesions and when discovered it was dark and swollen and not infrequently gangrenous. The explanation of the sudden attack in these cases and the distortion found could only be accounted for by a volvulus or twist in the mesenteric attachment and what appeared to be dense adhesions cut through before exposing the appendix was the folded and twisted mesentery, while the twist completely explained the doubling of the appendix on itself. The true cause of the trouble, however, was shown by the doubled-up, distorted, and often gangrenous appendix hidden away in the twisted mesentery. Since his attention had been directed to these cases he had twice had an opportunity of actually verifying and demonstrating the twist when operating. One was the case of a young man who, whilst at stool, was seized with violent pain in the right inguinal region followed by vomiting. The pain was very severe for an hour or so and then almost suddenly ceased. When the patient was seen the following day he was apparently perfectly well and with the exception of a little tenderness nothing could be found amiss. Six months later, when practising a young horse over some hurdles, he had an exactly similar attack which he described as having "sprained his groin." However, unlike the first attack, the pain and sickness continued and when seen on the third day he was in the midst of a typical and acute attack of appendicitis. An operation was at once performed and it was found that the neighbouring structures were already slightly glued together. The appendix was found with difficulty, being drawn down and doubled on itself and concealed by what appeared to be a folding over of the mesentery and this was partly cut through, believing the fold to be only an old adhesion. Mr. Cripps then referred to a similar case in which a twist of a turn and a half in the mesentery had resulted in a complete doubling of the appendix. The appendix in this case was obvious directly the abdomen was opened; it was superficial and completely doubled up by a corkscrew twist of its mesentery. It was as large as the little finger, being in a swollen and œdematous condition. The condition was so obvious and the adhesion was so slight that the volvulus was readily untwisted and the swollen appendix, previously doubled up, came out straight and was nearly four inches in length. The

discussion last week at this society, together with the invaluable records of cases furnished, demonstrated beyond doubt what had already been generally admitted, that when appendicectomy was done for recurrent attacks during a quiescent period it was one of the safest and most successful operations in surgery, while, on the other hand, the same statistics showed the great danger there was in the cases that had gone on to suppuration. He believed in evacuating the matter by a full-length incision and cautious dissection. After gently washing out the pus if the appendix could be seen or felt it should be removed with as little disturbance of the parts as possible. If, on the other hand, the appendix or its remains could only be removed by a prolonged dissection involving the extensive separation of adhesions and the almost certainty of contaminating the peritoneum, it was safer and less risky to be satisfied with a good gauze drain, only closing the angles of the wound. In conclusion Mr. Cripps wished, without hesitation, to endorse the views of Mr. Pearce Gould. It being universally admitted that the presence of suppuration or sloughing enormously added to the risk of the patient, why then wait between the onset of an attack until this condition was established?

Dr. S. WEST said that to estimate the facts correctly the experience of both physicians and surgeons was necessary and that each of them looked at the subject from different points of view. The physician was impressed by the number of cases that recovered without operation and the surgeon by the success which attended operation. It was not a safe assumption to make that the appendix was an obsolete structure and useless to the body. For all they knew the contrary might be the case. The increase in appendicitis of recent years was rather apparent than real and was explained largely by the increased number of cases operated on in the quiescent stage. To appraise the statistics of operation at their true value the statistics of appendicitis without operation were required for comparison. Not many statistics were available. Taking Hawkins's figures as a basis it appeared that 72 per cent. of the cases of acute appendicitis recovered without any operation, that of the remainder 13 per cent. had general peritonitis of whom most died whether operated on or not, and 15 per cent. ended in suppuration of whom about 4 per cent. died. The total mortality for all cases together was 14 per cent. Fitz made it 11 per cent. If the cases of general peritonitis were excluded the mortality rate with the minimum of surgery was under 5 per cent. If this were the truth or anywhere near the truth it should make them pause before recommending operation in all cases indiscriminately. Dr. West summed up his conclusions as follows. 1. The great majority of all cases of appendicitis (three-quarters) recover without operation. 2. Some recur and these should be operated on in the quiescent stage, the risk being then very small. 3. Whenever suppuration was manifest or probable operation should be performed at once. 4. Even perforation cases might be less fatal if operated on earlier. 5. The risk of perforation was exaggerated. 6. The opening of the abdomen was not a trifling procedure but introduced risks of its own. 7. Each case must be considered on its own merits and dealt with accordingly. 8. The success of operation largely depended upon the skill of the operator, so that a personal factor entered into the results which could not be allowed for in general statistics.

Mr. W. BRUCE CLARKE said that most speakers had divided the cases into two groups—the acute and the chronic. There was a general consensus of opinion in the method of dealing with the chronic cases. With regard to the acute cases, however, he thought that the fatal results were mostly due to infection of the peritoneum, and he would not in such cases make any endeavour to find and to remove the appendix unless it was easily seen or felt. He referred to two very similar cases, one in which the abscess was opened and the appendix not removed and a second in which the appendix was removed. The first made a good recovery but the second died. He then referred to the condition of the appendix removed in some 200 cases. In 191 the epithelium was denuded and opened a path for septic absorption, in two there were tuberculous ulcers, whilst in the remaining seven no lesion was found. Of these seven cases five had been lost sight of, but in the remaining two one had subsequently had a renal calculus removed and the other a gall-stone. In these cases it was probable that an error of diagnosis had been made in the nature of the attack. He referred to another case in which a patient had had the appendix removed and yet suffered from recurrent attacks of "appendicitis." The abdomen was opened and an ileo-colic intussusception was found, produced by a polypus in the end of the cæcum.

Mr. W. G. SPENCER said that he had tabulated an account of 100 consecutive recent operations, extending up to Jan. 31st, 1905, mainly from the year 1904, also from 1903. Some of the other tables went back for so many years that the objection might be raised that all sorts of improvements had been introduced in the meantime. It seemed to him that the registrars would have placed the present state of affairs in clearer relief if they had confined themselves to recent years during which treatment had been influenced by various modifications of older methods. His table showed what had happened when the operation had been carried out immediately and the appendix removed in all cases. He thought that an absolute uncertainty prevailed as regarded prognosis in any individual case and no additional experience afforded him any added power of making one. A prognosis resting on statistics gave cold comfort to the individual when he could be well assured that he might not form one of the unfortunate minority.

Mr. J. D. MALCOLM gave his support to the view that early diagnosis and early treatment should be aimed at with a view to the prevention of septic complications. He related a case in which after 30 hours of very insidious symptoms a patient, aged 58 years, became acutely ill with great abdominal distension, vomiting, and rapid pulse, the temperature rising to 100·6° F., whilst the pulse rapidly rose to 130. On operating 44 hours after the symptoms began he found that there were three small sloughs in the appendix. It was surrounded by flaky lymph and there was some clear serous fluid which, however, was not shut off from the general sac of the peritoneum by adhesions. At a little distance the serous membrane appeared healthy but the intestines were greatly distended. He said that an inflammation terminating in sloughing was a sthenic process accompanied by a quick pulse, high temperature, hot dry skin, tenderness in the focus of infection, with great vascularity and œdematous swelling around it. Moreover, these symptoms progressed in severity for about three days before they terminated in resolution, pus formation, or sloughing. A gangrenous patch, which was quite different from a sloughing of the whole appendix and which was found 44 hours after the onset of symptoms that for 30 hours were very insidious, could not be due to such a process. He suggested that the gangrene occurred spontaneously and painlessly. It was pointed out that a similar process, without pain or symptoms, sometimes occurred in the wall of an ovarian tumour and in some cases of senile gangrene in the stomach and in the duodenum. He thought that the resemblance which had been noted between the appendix and the digestive organs in their structure and functions might be extended to their pathology, for in both there seemed to be a liability to a spontaneous, localised, painless, non-inflammatory gangrene which in both cases might be in single patches or multiple. Such a gangrene, when the slough did not separate, would give rise to a filtration of infective material through the sloughs and a consequent development of an asthenic peritonitis, causing death later by paralysis of the intestine, the symptoms at first indicating little danger. It was suggested that a localised spontaneous gangrene, if accompanied by pressure within the walls of the appendix, would very readily give rise to a rupture at the gangrenous part and so some cases of rapidly fatal illness might be explained. Case No. 190 in Mr. Lockwood's table, in which a gangrenous patch was found and pus in the pelvis and iliac fossa, was a good illustration of this condition. It was argued that immediate operation was as necessary in such cases as in those of perforating gastric or duodenal ulcer and that the results should be equally good. The differential diagnosis of these cases was, however, exceedingly difficult and therefore it was necessary to operate very early in all but the simplest cases if those of spontaneous gangrene were to be saved. This plan was therefore considered advisable unless such early operations were prejudicial in other cases. It was urged that a true inflammation of the appendix always began in the mucous membrane, so that an early operation would insure a complete removal of the source of mischief. By delaying it was possible to save many patients from an operation but they might be saved only to become victims of dangerous septic complications, and if the surgeon waited until an operation was absolutely necessary it would have to be undertaken at the worst possible time, that is, when the ill-effects of the initial inflammation had fully developed.

It was considered safe to leave only those cases in which the patient was already recovering when first seen.

Mr. F. C. WALLIS said he would refer but to two points which had not been touched upon during the discussion. The first was the condition of the omentum in cases of acute appendicitis. He mentioned the case of a boy operated on for appendicitis in whom the omentum was infiltrated but not adherent. Three weeks after the operation symptoms of partial obstruction were present. The abdomen was opened and it was found that the small intestine was adherent to the omentum in two places. Two methods of treatment were possible in such a case, one to anchor the omentum and the other to remove it, and he was in favour of the second mode of treatment. The second point to which he referred was a protest against allowing patients to get up on the tenth or fourteenth day after the appendix had been removed. He considered that considerable risks were run by allowing patients to get up at so early a period after operation.

Dr. G. NEWTON PITT said that he had come to the conclusion that appendicitis had become more common. A marked increase occurred during 1889–90 and was coincident with the prevalence of influenza. He was of opinion that there was both an increase in the incidence and in the mortality of the disease.

The PRESIDENT regretted that Sir Frederick Treves was prevented from attending to conclude the discussion. He thought all would agree that that debate had been of extreme value. The subject of it had ripened through many years of experience, discussion, and criticism since it was first propounded at that society by Sir Frederick Treves in 1887, and it was particularly appropriate therefore that he should have introduced and reviewed it on this occasion. It must have been gratifying to him and to many other surgeons, most of whom had spoken in that debate, to watch the development of this domain of surgery to its present state of completeness. The great value of a discussion such as they had had, lasting through three prolonged and well-attended meetings, was that it had, for that time at least, concentrated the attention of both surgeons and physicians upon one particular problem in this case as to the best way of rendering the results of operations for appendicitis most satisfactory and of avoiding untoward complications. Many minds would have been settled as to the best modes of procedure, many points decided in the course of the debate, and by the large statistical experience with which it had been enriched. 1. One point, for instance, insisted upon by Sir Frederick Treves and strongly advocated by Mr. Pearce Gould, Sir William Bennett, Mr. Cripps, and Mr. Bruce Clarke, was that in cases of perityphlitic abscess it was best, as a rule, not to try to remove the appendix when imbedded, as it generally was, in entangled adhesions. 2. Another point which seemed to come out very strongly in the debate, and which was referred to by Sir Frederick Treves and alluded to by Dr. H. P. Hawkins and Mr. W. H. Battle, was the fact that failures and subsequent complication of the operation were sometimes attributable to its not having been adequately performed—i.e., to the appendix not having been excised from its very origin at the cæcum but only a portion cut off—and that this incompleteness of the operation was not infrequently due to the cæcal end of the appendix being partially invaginated. 3. Then, again, there was the very difficult question which had been touched upon by more than one speaker—viz., when to operate—and this was a question which was also of great interest and importance to the physician who otherwise was perhaps more concerned with the conditions which led up to appendicitis which did not come within the scope of the debate. When the diagnosis of perityphlitic abscess had been arrived at of course the operation practically immediately followed. Mr. Cripps would not wait for abscess but would advise operation in the earlier stage of appendicitis. But great emphasis had rightly been laid by many speakers, especially by Mr. Pearce Gould, Mr. G. R. Turner, and Mr. H. F. Waterhouse, upon the importance of anticipating abscess by dealing with the appendix in what was called the quiescent period of appendicitis. This view must, of course, be guarded by great care in diagnosis, for whilst, on the one hand, if diseased appendices were allowed to remain there was the risk at any moment of abscess with general peritonitis, with the result of raising the mortality of operative interference to about 25 per cent. instead of 2 per cent. or less for the simple operation; on the other hand, healthy appendices were sometimes removed, leaving behind the malady from which the patient had been promised relief. The danger must be recognised that the operation might be too lightly undertaken and might become too much of a routine practice and not sufficiently safeguarded by careful and accurate diagnosis. 4. Future complications in quiescent cases might be sometimes avoided by a careful preparation of the patient for a few days before the operation. 5. The society was especially indebted to Mr. Lockwood for his most valuable contribution to the debate by illustrating so clearly on the screen those points in the pathology of diseased appendices which were so intimately concerned with the future of the cases operated on. 6. Another point of great importance to the future comfort of the patient was touched upon by several speakers—viz., especially in cases requiring large incisions, the avoidance as much as possible in the first incisions of cutting across muscular fibre, the importance of separating rather than dividing the muscle with the view of obviating ventral hernia and the necessity afterwards of using a large and cumbersome truss. He could not let that opportunity pass without offering the sincere thanks of the society to those gentlemen who had taken part in the debate, and especially to those—Mr. Hugh Lett, Mr. W. H. Battle, Mr. G. E. Gask, Mr. A. Baldwin, Mr. W. G. Spencer, Mr. Barling, Mr. C. B. Lockwood, Dr. Lawrence Jones, Dr. H. P. Hawkins, Mr. H. S. Clogg, and Mr. H. A. T. Fairbank—who had at great labour prepared the statistics of some thousands of cases which had been laid before the society.

MEDICAL SOCIETY OF LONDON.

Carcinoma.

A MEETING of this society was held on March 13th, Mr. JOHN LANGTON, the President, being in the chair.

Dr. E. F. BASHFORD read a paper on Carcinoma based on researches made under the auspices of the Imperial Cancer Research Fund. He said that he proposed to confine his remarks to the "growth of cancer" and emphasised the fundamental importance of the study of its process of growth as distinct from its genesis. It was, in his view, the only effective method by which progress could be made in the solution of the problems as to the nature and the origin of cancer. He then gave some account of the work which had been accomplished by means of comparative and experimental methods, exhibiting a large number of lantern slides in illustration of various points of importance. He defined cancer as a malignant new growth. Many of the recent hypotheses enunciated to explain cancer had started with a theory of origin but failed to explain how the actual cell multiplication had been maintained in the gradual increase of the tumours.

PATHOLOGICAL SOCIETY OF LONDON.

Recent Work on Proteid Chemistry and Proteid Diet.

A MEETING of this society was held on March 7th, Dr. W. D. HALLIBURTON being in the chair.

Dr. HALLIBURTON read a paper on Recent Work on Proteid Chemistry and Proteid Diet. The paper, he said, was the outcome of a request from certain members of the society that he should lay before them the results of recent progress in connexion with the chemistry and the dietetic value of the proteids. In the time at his disposal he was only able to deal with this large and important question in its main features. The doctrine of Kühne that the albuminous molecule consisted of hemi- and anti-complexes united together had been abandoned. With the disappearance of that conception interest centred around the final decomposition products such as were obtainable as the result of prolonged proteolysis. Before a synthesis was possible a correct knowledge of these cleavage products was a preliminary necessity. These might be classified into the mono-amino acids like leucine and glycine, the diamino acids or hexone bases, the aromatic amino acids like tyrosine and tryptophane, members of the pyrrimidin and pyrrolidine groups, the sulphur-containing substance cystin, and ammonia. Particular attention was directed to the groups of amino acids called polypeptides which occurred as an intermediate stage in proteolysis between the peptones and the final products; and the fact that Emil Fischer had synthesised some of these was an indication that such work might culminate in the actual synthesis of the proteid molecule. In connexion with proteid absorption the trend of recent

research was to show that a much more complete proteolysis occurred in the alimentary canal than was formerly supposed to be the case. The tissue proteids must therefore be constructed from the simple cleavage products and thus proteids were brought into line with fats and carbohydrates. This new theory assumed a complete breakdown of the foodstuffs previously to their being built up within the living tissue. It was thus less difficult to understand how the living organism could construct from the fragments the tissues peculiar to itself and maintain its chemical integrity although the food taken might vary widely in composition. If, however, foreign proteids were introduced directly into the blood stream they appeared to be retained largely in the body and if they were really utilised and preliminary cleavage was necessary, this must be accomplished by the tissue erepsins and similar intracellular enzymes. The activity now manifested by so many workers on the subject of autolysis was warranted by the importance of the subject. The part played by the tissue enzymes during life could only be elucidated by allowing them full scope after death. The discovery of the urea-forming ferment arginase had already been one important outcome of such study. Dr. Halliburton concluded his paper by a reference to the work of Chittenden on the "Physiological Economy in Nutrition" and showed that it was possible that our views concerning what constituted a normal dietary and a normal urine might need revision. Chittenden and his co-workers lived for prolonged periods on diets in which the amount of proteid was reduced to one half of what was laid down in the accepted Voit standard. This they did without apparent detriment to health and maintained their nitrogenous equilibrium. Whether such persons had the reserve force to withstand disease and severe privation must be left to the future. The matter was an important one for the economist as well as for the physiologist and pathologist. The work might also modify modern ideas regarding the feeding of infants and invalids.

Dr. R. HUTCHISON was glad that Dr. Halliburton had thrown out some warning against a too easy acceptance of the views put forward by Chittenden. The questions raised were difficult and involved other considerations beyond the establishment of nitrogenous equilibrium. Proteids had other uses in the economy of the body both in the direction of resistance against disease and as a possible source of stimulation of activity. The points under discussion could not be settled by experiments such as those of Chittenden and it was noticeable that diets all the world over showed a close approximation to the Voit standard.

Dr. E. H. STARLING said that in considering the total amount of nitrogen necessary for the adult man it was advisable to take into account two forms of metabolism—the nutritional metabolism and the energy metabolism. In the first the proteid could not be replaced by any other food and for that reason food with a high nitrogen value was necessary for infants and for invalids; in the second the proteid was only of service in proportion to its heat value and could be replaced by the fats and carbohydrates. Chittenden had not taken into account the results of overstrain and the value of a highly nitrogenous diet in dealing with that condition.

Dr. C. G. SELIGMANN referred to the natives of New Guinea as examples of a race subsisting on food of low nitrogenous value. He had found that they lacked stamina and compared unfavourably in that respect with rice-eating races.

Dr. C. J. MARTIN believed that the ordinary diet containing 17 grammes of nitrogen was too high and pointed to the fact that a considerable portion was immediately thrown out in the form of urea. A large number of people could do perfectly well on ten grammes and the additional amount really came into the same category as alcohol and tobacco. The defect in the British army ration was the excess of nitrogen and insufficiency of calories.

Dr. W. S. LAZARUS-BARLOW referred to the specific precipitin reaction of proteids and its remarkable value in the differentiation of varieties which were otherwise identical.

CLINICAL SOCIETY OF LONDON.

Discussion on Rheumatoid Arthritis, Arthritis Deformans, and their Allies.

A MEETING of this society was held on March 10th, Dr. FREDERICK TAYLOR, the President, being in the chair.

Dr. W. HALE WHITE made a communication on Acute Rheumatoid Arthritis, with epidiascope demonstration. He remarked that among the diseases which were often grouped together under the names rheumatoid arthritis, osteo-arthritis, arthritis deformans, and chronic articular rheumatism there was one which should be sharply separated off as a distinct disease and which might be designated acute rheumatoid arthritis. It had, he believed, the following characteristics. It was usually met with in women whose age was most often about 20 years; the disease began, or was at any rate soon found, most prominently in the proximal phalangeal joints and in the wrists; it was markedly symmetrical in the two hands; the swelling was considerable and extended beyond the joints, so that there was a well-marked fusiform or generalised swelling about the affected joints; sometimes a creaking might be felt, due apparently to thickening of the synovial membrane. In the course of a very few weeks most of the joints in the body were swollen and painful, so that the patient was soon bedridden and unable to move fingers, thumbs, wrists, elbows, shoulders, and the corresponding joints of the lower extremity. The joints of the spine were often affected so that turning in bed was difficult and painful; the temporo-maxillary joint was frequently implicated and mastication was consequently difficult. Muscular wasting was so very rapid that it was clearly an extreme degree of genuine arthritic atrophy and not dependent on disuse; the wasting was especially seen in the hand and the forearm, but in a bad case it was almost universal. The temperature was often raised, mostly in the evening, to a point between 100° and 102° F. The hands and the feet were often covered with sweat while the rest of the body was quite dry; the patient was pale and the pulse increased in frequency out of proportion to, and apart from, pyrexia, although neither from the history nor from the examination of the heart was there any evidence to connect the disease with rheumatic fever. Sometimes a number of brown spots like large dark freckles appeared on the face, the body, and the limbs. After two, three, four, or even six weeks the temperature slowly returned to normal and the rate of the pulse diminished, but more slowly than the temperature; the sweating of the hands and the feet lessened, the pain passed away, but much immobility and some swelling around the joints remained. The patient was liable to fresh attacks which exactly resembled the first and resulted in fresh swelling of, and around, the already fixed joints. After the acute stage had subsided the sufferer by no means recovered the use of her joints, for the swelling of the synovial membrane and the soft tissues around led to great immobility and much of the muscular atrophy remained; the patient was hence often a chronic invalid. In this respect, as well as in many others, the disease presented a striking contrast to rheumatic fever. Careful manual examination during life, even in cases which had lasted many years, failed to reveal any lipping or bony outgrowths in connexion with the joints. The deformity appeared to be entirely due to effusion into the joint and swelling of the tissues around. Radiographic examination confirmed this view. As a rule the attacks diminished in severity as time went on and ultimately the patient might only suffer from the deformities resulting from previous attacks. Dr. Hale White next described the histology of the disease and showed that it undoubtedly originated in the synovial membrane and the tissues around the joint and that no changes occurred in the bone or the cartilage except such as were produced by pressure of thickened synovial fringes. He then described the case of a woman, aged 25 years, and pointed out the importance of passive movements in order to prevent fixation. He showed by means of lantern slides that the bones were unusually transparent to the x rays. Lastly, he discussed the relation of this to other diseases, maintaining that it was a distinct morbid condition for which the most convenient appellation would be acute rheumatoid arthritis.

Dr. BERTRAM L. ABRAHAMS read a paper on Arthritis Deformans and its Allies. The expression "arthritis deformans" was selected as the least unscientific of the many names—Purnam in his recent monograph had quoted 21—for the disease and that in most general use on the continent and in America. There were, in Dr. Abrahams's view, four chief maladies which were grouped under this head. Of these, that described by Dr. G. F. Still in children stood apart by reason of its course, the sequence of joints affected, and the associated enlargement of the spleen and the lymphatic glands. At the other end of the scale was senile osteo-arthritis which was a degenerative process which might come

on as the terminal phase of arthritis deformans, or quite apart from it as a senile change in normal joints or in those already crippled by true rheumatism. The two remaining affections—acute and chronic arthritis deformans—were, it was suggested, different forms of the same malady which was in all probability of an infective or at any rate a toxæmic nature. In the acute type, which occurred for the most part in young women, the poison was in such considerable amount that a large number of joints were, so to speak, flooded with it and simultaneously affected. In the chronic form, a multiple arthritis in middle-aged persons, the intoxication was less severe but more prolonged, so that the morbid changes were more in the nature of degeneration than of inflammation and the joints were picked out in a fairly definite order. At the same time, as might be expected, much of the brunt of the disease fell upon the nervous system. That the two types merged into one another was further indicated by the number of intermediate forms which were met with. Skiagrams and photographs were shown of the following conditions: gonorrhœal arthritis, Charcot's joint disease, acute arthritis deformans, and chronic arthritis deformans.

Dr. F. S. TOOGOOD was familiar in infirmary practice with Dr. Hale White's acute cases but thought that the same disease occurred also in men. He remarked on the difficulty in diagnosis between these cases and gout. In his experience drugs were of no avail in the condition, though a proteid diet sometimes did good. The senile form of arthritis deformans in which fibrillation and other degenerative changes occurred in the cartilages was to be found post mortem in greater or less degree in nearly all persons over 60 years of age. That morning he had examined the joints—specimens of which he exhibited—of a patient which were of this nature.

Dr. A. E. GARROD, following the classification adopted by Dr. Abrahams in his paper, referred to the disease met with in children, the relation of which to acute rheumatoid arthritis he regarded as an open question; in his (Dr. Garrod's) experience the enlargement of the spleen and the lymphatic glands was by no means constant, but the fatal tendency of the disease of children was in marked contrast to what was seen in the malady in adults. He was convinced that the cases met with in middle life were examples of two, if not of three, distinct diseases. In one class of cases, which might be called rheumatoid arthritis, the fusiform swelling around the joints, the special implication of the interphalangeal joints of the first row, the rise of the temperature, and the rapid pulse were important characteristics. In the other disease, which might be designated multiple osteo-arthritis, the osteophytic enlargements, the absence of any obvious swelling of the joint capsules, and the special liability of the end joints of the fingers and carpo-metacarpal joints of the thumbs were conspicuous. Both diseases were apt to implicate the joints of the cervical spine and the jaw. It was important to realise that the former disease, whether acute, as in Dr. Hale White's cases, or more chronic, as it often was, was almost certainly infective and in time ran its course. He suggested that the name of rheumatoid arthritis should be limited to the former and that of multiple osteo-arthritis to the latter disease. The former was commoner in earlier life but might occur at any age; the latter was commoner in later life but might develop unusually early. The infection in the rheumatoid cases was very often a puerperal one, thus partly accounting for the greater frequency in women, though men were also attacked. Treatment was more efficacious in the osteo-arthritic cases. He was inclined to believe that there was a third and much rarer disease which included those cases in which without very conspicuous swelling of joints the muscular atrophy and contracture without resulting deformities were prominent features almost from the onset.

Dr. A. P. LUFF also thought that several different diseases had been included under the same name. He regarded rheumatoid arthritis, whether acute or chronic, as of infective origin. He believed strongly that the infection took place by the alimentary tract and was convinced of the high value of intestinal antiseptics, notably of carbonate of guaiacol. In the distribution of the lesions he remarked that the acute cases affected the proximal interphalangeal joints and the chronic the thumb joints. In the diagnosis between rheumatoid arthritis and gout there should not be much difficulty; the two most important points were the symmetry of the former and the sweating or clamminess of the palms and the soles. The cervical vertebræ and the temporo-maxillary joint were rarely affected in gout. He commented on the advances made of late years in the treatment of rheumatoid arthritis and advocated abundant nutriment. He did not think that the single-joint type of case was of infective origin but was a traumatic form of osteo-arthritis; monarticular rheumatoid arthritis was therefore a bad term.

Dr. PRESTON KING (Bath) remarked that Dr. J. K. Spender of Bath had first pointed out the rapid pulse, the sweating of the palms, and other characteristic features of the more acute forms of rheumatoid arthritis. He (Dr. King) did not think that the x rays were of any value in the diagnosis from gout and doubted whether increased transparency necessarily implied rarefied bone. That there was a strong nervous factor in the disease was undoubted; it was instanced by the muscular atrophy and the vaso-motor symptoms. He regarded the condition as a result of the action of the rheumatic virus on the nervous system.

M. BLANC (Aix-les-Bains) related two severe cases that had contracted diphtheria and had recovered from the joint disease after treatment by antitoxin. In ten cases he had used the same treatment and improvement had resulted but he had rarely had the opportunity of trying its effect apart from bath treatment. In regard to diagnosis the main difficulty was not in excluding gout but in distinguishing between rheumatoid arthritis and osteitis deformans.

Dr. W. EWART was of opinion that the toxic origin of these arthritic conditions was now established, though the number of such toxins was legion. The actual poison was more likely to be that secreted by microbes than the microbes themselves and might indeed be autotoxins. In this connexion he used the analogy of the joint changes seen in bronchiectasis. He was at present getting good results by varying the blood-supply to the part so as to produce alternate anæmia and hyperæmia.

Dr. R. LLEWELLYN JONES (Bath) saw very little difference between the acute and the chronic cases; the temperature ran a similar course in both. He found few cases free from nervous symptoms. He had also been struck by the segmental distribution of the lesions; thus the ring and the little fingers were usually affected together and the thumb and the index finger. He agreed with Dr. Luff as to the importance of gastro-intestinal troubles and cited cases of gastric ulcer followed by rheumatoid disease. He suggested an analogy with tetany and drew attention also to the frequency with which Graves's disease and rheumatoid arthritis were associated.

Dr. HALE WHITE, in reply, agreed that the condition which he had described was not rare in men. As regards the transparency of the ends of the bones and the fusiform shape of the swelling he recognised that both occurred in other conditions but as they were never absent in this disease their presence or absence was of importance in diagnosis. With regard to the grating observed by Dr. Garrod he acknowledged that destruction of the cartilage occurred, but emphasised the fact that it was in these cases always secondary to the synovial mischief. He was very sceptical as to the power of any drug to disinfect the alimentary canal.

Dr. ABRAHAMS, in reply, agreed with Dr. Luff as to the great value of guaiacol carbonate but could not attribute this to its antiseptic properties on the intestines, seeing that it was the only member of the group that possessed such beneficent effects. He was interested in M. Blanc's remarks on diphtheria antitoxin as ten years ago he had seen Dr. Sydney Ringer treat a case of gonorrhœal rheumatism with it. Dr. Ringer's favourite remedies for arthritic conditions were guaiacum and actæa racemosa.

BRITISH GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on March 10th, Dr. William Alexander, the President, being in the chair.—Dr. Frederick Edge showed: (1) A specimen of Malignant Adenoma of the Fundus of a Uterus removed by the vagina from a patient, aged 62 years, suffering from sanious vaginal discharge for two years previously; and (2) a Malignant Tubo-ovarian Cyst from a patient, aged 44 years, who complained of a foreign body. The papillomatous growth commenced in the tube and did not involve the wall deeply.—Dr. Edge also read notes of a case of Severe Metrorrhagia where, after removal of the uterus, a submucous fibroid was found at the fundus with lengthening of the cavity for an inch, and exhibited a Uterus removed from a patient past the menopause for prolapse and ulceration of the vagina. In performing vaginal hysterectomy for prolapse he divided the posterior vaginal

wall mesially and after removing the uterus he sutured the recto-vaginal fascia transversely which permitted complete closure of the anterior part of the wound with drainage of the pouch of Douglas from the lowest point without weakening the pelvic floor.—Dr. J. Inglis Parsons then read a paper on the Choice of Treatment for Fibromyoma of the Uterus. The question was discussed under seven headings. 1. Tumours producing no symptoms. Operation was not considered justifiable in these cases. 2. Small tumours causing severe menorrhagia without pressure symptoms. In 95 per cent. electricity would diminish the hæmorrhage and ought to be tried before operation. 3. Small tumours producing pressure symptoms, with or without menorrhagia. If the pressure was on the bladder operation was necessary, myomectomy, hysterectomy, or removal of the appendages. 4. Uniform enlargement, in shape resembling that of pregnancy at four to six months and causing pain and metrorrhagia. Operation was recommended for this group because of the pressure symptoms but if declined electricity was of great value. 5. Tumours forming a round mass confined to the pelvis and sometimes impacted should be operated on as soon as possible because of the pressure caused by them. 6. Very large tumours filling the abdomen, of the size of a full-term pregnancy. Hysterectomy was the only available treatment for these tumours. 7. The relation of the menopause to fibroid tumours. The menopause came on much later and as a rule the tumours ceased to grow and became smaller. He gave notes of three cases treated by electricity which he had watched for 17, 14, and 9 years respectively through the menopause and which were doing well without operation.—Dr. J. A. Mansell Moullin said that the paper ignored the brilliant improvement in the results obtained by operation during the last 15 years. Any discussion might, he thought, be confined to the cases in the first group as all the others undoubtedly demanded operation.—Dr. H. Macnaughton-Jones had tried electricity and, like Martin and Mackenrodt, had given it up. Every case should be dealt with according to its special features and complications.—Dr. J. Macpherson Lawrie protested against the sweeping disapproval of electrical treatment of myoma. He had known it to be of good service in many cases, diminishing hæmorrhage, relieving pain, and sometimes leading to shrinking of the tumour.—The President thought that a patient ought not to be informed of the presence of a tumour, the knowledge of which would be a constant source of depression to her. She should invariably be given medical treatment in the first place and the removal of the tumour should only be undertaken by the gynæcologist. Any good effects of electricity were merely palliative and deferred but did not do away with the necessity for an operation. He had found the results of the removal of the appendages very untrustworthy and in the majority of cases thought hysterectomy to be the best operation though if the tumour was a solitary one he might enucleate it.—Dr. Inglis Parsons, in reply, said that if, as was sometimes possible, the pelvic organs were restored to health by electrical treatment the patient would not be a chronic invalid; he had not found such treatment render a subsequent operation, when necessary, more difficult nor had he ever lost a case from it. The general practitioner ought to try the medicines he had mentioned before sending the case to the specialist. He entirely agreed with the President as to the removal of the appendages.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 3rd, Dr. Adolph Bronner being in the chair.—Dr. E. F. Trevelyan described cases of Erb's Juvenile Dystrophy occurring in four well-developed members of a family made up of father, aged 49 years, mother, aged 36 years, four sons, aged respectively 18, 17, 11, and two years, and four daughters aged respectively 20, 15, 13, and seven years. The father, two sons aged respectively 18 and 11 years, and the daughter, aged 13 years, were affected. The chief characteristics of the disease in the father and two eldest children consisted in the winged and displaced scapulæ, the wasted muscles of the upper arm (including the brachio-radialis), lordosis, and a slight waddle in the gait. The volume of the deltoids was considerable. Some unusual muscles were involved in both the father and the eldest son. The son, aged 11 years, showed only slight displacement of the scapulæ and some weakness of the muscles. No hereditary or family factor could be ascertained in the father, in whom the disease commenced at the age of 18 years. Dr. Trevelyan then distinguished between the various types of progressive dystrophy and between the latter and amyotrophies of spinal cord and peripheral nerve origin. The slow progress of the disease and its temporary arrest were illustrated by the case of the father who had been able to do manual work up to recently. The disease apparently began in the elder son between the age of 12½ and 14 years, while he was engaged in hard work in pushing trucks in a quarry. The prognosis seemed to be unfavourable in his case as the disease was extending rather rapidly. Reference was made to the supposed limited vitality of the muscles in progressive dystrophy and to certain developmental facts, such as the liability to variations in the muscles most often affected in this disease. Repair seemed to be impossible in these cases and the most that could be hoped for was the arrest of the disease. For this purpose the patient should live under the best hygienic conditions and perhaps massage and systematised exercise might also be useful.—Dr. Thomas Churton, Dr. A. G. Barrs, and Dr. T. W. Griffith discussed the paper.—Dr. Carlton Oldfield read a paper on a case of Vesicular Mole associated with Double Ovarian Cysts and followed by a Growth of Chorio-epithelioma in the Uterus. The patient was aged 22 years. Two weeks after the date when she had expected to be confined she had a dribbling menstrual discharge for three months and then a severe hæmorrhage. A vesicular mole was removed and the next day the ovarian cysts were noticed. Five weeks later the cysts were removed and the body of the uterus was amputated, a disc of growth of the size of a shilling being found in the muscular substance of the posterior uterine wall. A week later the cervix uteri was removed through the vagina. The patient made a rapid recovery and was well and free from recurrence 13 months afterwards. Attention was drawn to the association of the three rare conditions—namely, lutein ovarian cysts, vesicular mole, and chorio-epithelioma—and quotations from the literature were given to show that chorio-epithelioma was so often associated with the other conditions that there must be some causal relationship. The theory put forward was that excessive lutein secretion from the lutein cystic ovaries was the cause of the excessive proliferation of the trophoblast, resulting first in vesicular mole and then in chorio-epithelioma.—Professor A. S. F. Grünbaum read a paper on Vaccines and Serums in Theory and Practice.—Dr. H. J. Clarke and Mr. B. G. A. Moynihan showed a patient upon whom Gastro-enterostomy was performed five years ago.—Mr. L. A. Rowden showed a case of Lupus Vulgaris nearly healed under treatment by the x rays.—Dr. T. Churton showed a man who suddenly became cyanosed while at work, was bled to the amount of 40 ounces, and rapidly recovered.—Other cases and specimens were shown by Mr. J. Stewart, Dr. H. Irving, Dr. J. B. Hellier, Mr. H. Secker Walker, Dr. T. Wardrop Griffith, Mr. S. T. Rowling, Dr. Alfred Mantle, Mr. Edward Ward, and Mr. R. Lawford Knaggs.

ULSTER MEDICAL SOCIETY.—The seventh annual meeting of this society was held in the Pathological Laboratory of Queen's College, Belfast, on March 2nd, Dr. W. Calwell, the President, being in the chair. Professor Johnson Symington and Dr. H. Hanna exhibited: (1) a series of Young Temporal Bones showing the Development of the Air Cells; (2) a Female Pelvis with Distended Rectum, showing the spread of malignant disease from the uterus; (3) a Skull to illustrate the Eruption of Teeth; (4) Enlarged Photographs of the Internal Ear and Sections of the Medulla Oblongata; and (5) Drawings from Sections of the Brain.—Professor T. H. Milroy read a short paper on the Exchange of Nutritive Material between Different Organs of the Body, as exemplified in the Spawning of Fish.—Dr. J. A. Milroy gave a Microscopic Demonstration of some Specimens illustrating the Structure of the Ductless Glands.—Dr. R. A. L. Graham described a case of General Paralysis of the Insane with Meningo-myelitis (illustrated by sections shown by the lantern).—Sir William Whitla showed a Tumour of the Brain (with sections).—Professor J. W. Byers showed: (1) a Solid Tumour of the Ovary (section); (2) an Extra-uterine Fœtation, beautifully mounted to show the bones by Dr. Marion B. Andrews; (3) a specimen with an Ovarian Tumour on one side and on the other a Tumour of the Fallopian tube but distinct from the ovary, probably tuberculous; (4) a New Pelvis for teaching purposes; and (5) a series of Plaster Casts of the Fœtal Head (natural

and abnormal).—Dr. John Campbell exhibited: (1) a Kidney Tumour; (2) a mounted specimen of Cancer of the Sigmoid Flexure; and (3) a Uterus removed per vaginam (with section) of an adenomatous nature.—Professor J. A. Lindsay showed a large Aneurysm of the Aorta.—Mr. G. L. St. George described: (1) a Parotid Tumour (with section); and (2) an Axillary Tumour (with section).—Dr. H. L. McKisack showed a Ruptured Aneurysm of the Basilar Artery.—Mr. A. B. Mitchell exhibited (1) a Sarcoma of the Femur (with section); (2) a Hand and Arm showing a combination of Tubercle and Carcinoma (with section); and (3) a Carcinomatous Tumour of the Scalp (with section).—Mr. A. Fullerton showed (1) a Malignant Adenoma of the Breast (with section); (2) a Dermoid Cyst of the Neck (with section); (3) a Duct Cancer of the Breast (with section); and (4) a Stomach showing Gastric Ulcer with Erosion of the Pancreas (section of pancreas).—Dr. T. S. Kirk, exhibited specimens of: (1) Acute Suppurative Periostitis; (2) Ovarian Cyst; (3) Squamous Epithelioma of the Lower Jaw (with section); (4) Lymphosarcoma of rectum (with section); and (5) a Series of Prostates.—Dr. James Lynass exhibited: (1) Charts showing the Effects of the Serum Treatment of Erysipelas; and (2) Glandular Tumours removed from the Neck.—Dr. Marion Andrews showed: (1) an Abscess of the Ovary (with section); and (2) a series of Specimens Preserved and Mounted by the Kaiserling Method.—Dr. William Mair demonstrated certain recent Methods for distinguishing colonies of the bacillus coli and the bacillus typhosus.—Dr. Thomas Carnwath read a note on the Value of the Streptococcus as an Index of Sewage Contamination.—Dr. J. C. Rankin exhibited two interesting Skiagrams.—Dr. Thomas Houston and Dr. Rankin showed Preparations demonstrating that the Opsonic Power of the Serum is Destroyed by Heat at 60° C.—Dr. Houston also gave demonstrations of the Method of Preparing and Administering a Vaccine for the Treatment of Stapylococcic Lesions (A. E. Wright's method).

MANCHESTER MEDICAL SOCIETY.—A meeting of this society was held on March 1st, Mr. W. Thorburn, the President, being in the chair.—Dr. Joshua J. Cox showed an interesting case of a boy, aged nearly 11 years, with well-marked Achondroplasia, and weighing about 28 pounds. The differential signs between rickets, cretinism, and achondroplasia were pointed out and a series of skiagrams were on view of the bones in normal children, in a case of infantile myxœdema, and in achondroplasia. In the present case the stunting and deformity of the long bones, the "trident hand," the lordosis, and the immense development of the gluteal, the thigh, and the calf muscles were very noticeable. Dr. Cox pointed out the importance in obstetric practice of having careful pelvic measurements made in any case of pregnancy in which, owing to dwarfism with shortened extremities, slight achondroplasia with narrowing of the pelvis might be suspected.—Mr. E. Stanmore Bishop mentioned a case of Muco-colitis treated by Lavage through the Appendix. These cases usually occurred in women, in neurotic subjects, and were frequently complicated by some disease of the generative organs. After referring in detail to all the methods, medical and surgical, which had been adopted in their treatment he drew attention to a plan proposed by Dr. Weir of New York which utilised the appendix as a natural tube by means of which access might be obtained to the interior of the cæcum and thereby the entire large intestine might be flushed out. Details of the case were then given.—Dr. R. J. Ewart read a paper on Venesection, its Indications from a Physiological Standpoint, in which he showed the unsuitable character of the term "viscosity" as applied to blood. The blood met a much greater resistance in its passage through a capillary than would be the case with a homogeneous fluid, the disparity amounting to between four and five times. If it was desired to get the maximum number of bodies suspended in a fluid through a capillary with the minimum expenditure of energy a certain number must be present per cubic centimetre. This optimum depended on the size, shape, and specific gravity of the suspended bodies. The removal of blood from the vessels was always, even in very diverse conditions, followed by a fall in the number of corpuscles per unit of volume. A certain quantity of oxygen was an absolute necessity for tissue metabolism and this supply was the demarcating factor for the minimum rate of flow. Hence, therefore, variation in the number of corpuscles per unit of volume would render the blood mechanically inefficient as an oxygen vehicle. In disturbed conditions of the circulation, accompanied by anæmia, a hæmatinic course of treatment was more likely to be beneficial than attempts to stimulate the heart. If the number per unit of volume should rise venesection was strongly indicated. From a physiological standpoint the indication for venesection was an excessive relative number of corpuscles, provided that the circulation had sufficient power to make up the loss with lymph drawn from the tissue.—Dr. J. A. Knowles Renshaw showed a Radiogram of the Chest in a case of Aneurysm of the Arch of the Aorta.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 3rd, Mr. C. M. Tuke, the President, being in the chair.—Dr. Alexander Morison read a paper on Boldness in Treatment of Certain Phases of Pneumonia. The principal points referred to by Dr. Morison were (1) the treatment of high temperature by the application of ice to the body or to the head alone; (2) the conservation and relief of the heart by frequent injections hypodermically of strychnine and the administration of turpentine internally; and (3) the relief of the heart by blood-letting.—Dr. G. A. Sutherland, in referring to the use of strychnine, said that as a rule insufficient doses were given and advised the drug to be used at frequent intervals and in large doses until the physiological effects were produced.—Dr. A. Elliot did not think energetic and bold measures for reduction of temperature should be used unless the temperature exceeded 104° or 105° F. and then he found that application of ice to the chest was as a rule badly borne and he recommended cold sponging as being preferable. Referring to blood-letting, Dr. Elliot considered that the amount of blood withdrawn was not of such great importance as the rapidity with which the loss of blood was effected.—Dr. Otto F. F. Grünbaum also advised non-interference with the temperature *per se*, unless it exceeded 104°.—Dr. Morison, in reply, agreed with Dr. Elliot that it was not so much the quantity of blood withdrawn as the rapidity with which it escaped which relieved the surcharged heart.—Mr. Cecil H. Leaf read a paper on the Clinical Causes of Cancer of the Breast in which he proved by a very complete table of statistics that not only one but many causes of cancer exist. The special points discussed by Mr. Leaf were (1) age; (2) state—married or single; (3) family history; (4) lactation; (5) previous diseases of the breast; (6) injuries; (7) corsets; (8) worry and anxiety; (9) residence; (10) diet—consumption of meat, salt, uncooked vegetables, &c., alcohol; and (11) miscellaneous—general health, occupation, and infection.—Dr. S. D. Clippingdale considered the coincidence of cancer with consumption to be of great clinical importance and he also drew attention to a paper published by himself in which he endeavoured to show that both these diseases in London were more common in the low-lying districts near the river, irrespectively of soil.—Mr. J. G. Pardoe wished to impress upon the members the importance of the infectivity of cancer and gave a practical illustration of the same.—Mr. F. Lawrance considered cancer to be, without doubt, hereditary and also possibly infectious.—Mr. Leaf made a few remarks in reply.

CLINICAL SOCIETY OF MANCHESTER.—A meeting of this society was held on Feb. 21st at the Palatine Hotel, Dr. E. S. Reynolds being in the chair.—Dr. Gordon W. Fitzgerald read a paper on Hæmorrhage in the First Three Months of Pregnancy, with Special Reference to Abortion. He said that the chief causes of hæmorrhage in early pregnancy were abortion, menstruation, ectopic pregnancy, hydatidiform degeneration of the chorion, and malignant disease of the cervix. Abortions were classified as either threatened or inevitable. Incomplete, complete, cervical, and missed abortions were all inevitable. Chief amongst the causes was endometritis which itself was generally due either (1) to conditions causing chronic congestion of the uterus or disease of the endometrium; or (2) to improper emptying of the uterus at a former confinement. Patients who have previously aborted should, apart from other treatment, observe great caution during the times that they would be "unwell" were they not pregnant. "Habit" was frequently cured by pushing mercury. The use of the pessary to retain a gravid uterus in position was sometimes dangerous. Threatened abortions were treated by opium in large doses and by rest. The indication in inevitable abortion was to empty the uterus and the sooner this was done the better. The blunt flushing

curette would empty the uterus more safely and completely than any other means. Tents or rapid dilators might be needed to attain a sufficient dilatation of the cervix. After abortion the patient should be treated as after full-term delivery.

THERAPEUTICAL SOCIETY.—A meeting of this society was held on Feb. 21st, Mr. A. B. Day being in the chair.—Dr. T. E. B. Brown read a paper on Herbals and Herbaria, in which he described various old theories as to the action of plants as medicines and the necessity for accurate descriptions and pictures of medicinal plants; hence the origin of the science of botany and the formation of herbals. He spoke of Gerarde's, Tournefort's, and other herbals and read extracts of the use of sage and danger from the poison of toads if rue was not added; also of plants that improve the skin, such as arum, cyclamen, vervain, watercress, and white bryony. He described the use of black bryony root for contusions of the eye and of euphorbia juice to remove warts or hairs, or butterwort to turn the hairs yellow, and colocynth black, mentioning that more powerful remedies could be obtained from minerals but also more dangerous ones. He then described various methods of drying plants for herbaria and showed specimens prepared in 1770, and finished by quoting the familiar lines from Erasmus Darwin's "Loves of the Plants":—

"How snowdrops cold, and blue-eyed harebells blend
Their tender tears, as o'er the stream they bend;
The lovesick violet and the primrose pale
Bow their sweet heads and whisper to the gale;
With secret sighs the virgin lily droops,
And jealous cowslips hang their tawny cups;
How the young rose, in beauty's damask pride,
Drinks the warm blushes of his bashful bride;
With honeyed lips enamoured woodbines meet,
Clasp with fond arms, and mix their kisses sweet."

Afterwards there was an exhibition of Botanical and Therapeutical Appliances, in support of which the Society of Apothecaries of London showed a Herbarium made in 1770.—Mr. J. Bryant Sowerby of the Royal Botanic Society showed the original edition of Gerarde's Herbal and pictures of medicinal plants. Dr. Herbert French showed an early copy of Gerarde's Herbal, hand-painted, and two copies of Culpepper's Herbal, an easy Method to Measure Blood Pressure and Microscopes showing various kinds of leucocytes and modes of counting blood corpuscles; while Messrs. Watkins and Doncaster exhibited Botanical Presses and Collecting Cases, Messrs. Watson and Sons exhibited an improved High-frequency Apparatus in action, an X Ray Tube for Alternating Currents, and other electrical apparatus, and Messrs. Burroughs and Wellcome showed a large number of chemical and botanical specimens.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 2nd, Mr. G. Morgan, the President, being in the chair.—Dr. E. F. Maynard showed a child, aged 12 years, with Right Ulnar Paralysis which had developed gradually two months ago without evident cause and which was improving under electricity and massage. He also showed, with Dr. A. J. Hutchison, a man who was suffering from Spasmodic Dysphonia and who had previously had lead colic and wrist-drop. Dr. Hutchison remarked that spasmodic dysphonia was rare and usually occurred in voice-users, such as clergymen. In this case there was anæsthesia of the palate also and he thought the condition a kind of ataxy of the larynx due to lead. Improvement was taking place under treatment for lead poisoning.—Mr. V. T. Greenyer showed a girl, aged 15 years, whom he had treated successfully for Tuberculous Disease of the Knee-joint by injection of iodoform emulsion two years before.—Dr. L. A. Parry read notes of seven cases of Strangulated Hernia which he had seen lately and remarked on the danger of taxis in young children. He also related a case of acute intestinal obstruction in an infant from strangulation under a band, in which he had performed resection of the intestine; he showed the post-mortem specimen.—Mr. G. D. Kerr read notes of two cases of Obstinate Sciatica which he had treated successfully by the use of high-frequency currents.—It is worth noting that this was the 555th meeting of the society.

PLAISTOW AND CANNING TOWN MEDICAL SOCIETY.—A meeting of this society was held on March 9th, Dr. W. C. Taylor being in the chair. The annual report was read and passed.—The following gentlemen were elected office-bearers for the year: President, Mr. J. J. Harvey; vice-president, Mr. H. A. Nelson; honorary treasurer, Mr. H. S. Beadles; and honorary secretary, Dr. E. Hay.—Mr. Percy Rose exhibited a Liver and a Spleen with markedly thickened capsules resulting from chronic peritonitis consequent upon chronic interstitial nephritis.—Dr. Hay showed an infant with Dermatitis Gangrænosa in the Genito-crural Region. There was no antecedent varicella or any history of a specific fever to account for this form of local gangrene of the skin, but an elder child in the same family was stated to have just recovered from a similar dermatitis which developed shortly after an attack of diphtheria some three months previously.—Dr. J. Biernacki opened a discussion on the Difficulties in the Diagnosis of the Common Fevers.

SOUTH-WEST LONDON MEDICAL SOCIETY.—A meeting of this society was held on March 8th at the Lister Institute of Preventive Medicine, Chelsea, Mr. E. F. White, the President, being in the chair, when Dr. Allan Macfadyen gave an address on Some of the Bacteriological Work carried on in the Institute. He passed in review the various micro-organisms affecting the alimentary tract and demonstrated the method by which the Klebs-Löffler bacillus was isolated. He considered that the antiseptic action of the gastric juice was much over-rated and that most organisms were able to survive its action in the stomach and to pass on to the intestine. He divided food poisons into three groups: (1) food poisons already formed before entering the body; (2) food poisons due to the presence of a group of organisms called the "Gärtner organisms"; and (3) food poisons due to the "paratyphoid bacilli," which were intermediate between the typhoid bacilli and the Gärtner organisms.—At the close of the lecture numerous cultures and microscopic specimens were exhibited.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 8th, Dr. Reginald Eager being in the chair.—Dr. H. Waldo showed a case of Leukæmia and Dr. E. W. Hey Groves a case of Multiple Congenital Dislocations.—Dr. A. Ogilvy showed the Orbital Exostosis removed from a patient shown at a previous meeting.—Dr. James Swain showed a Large Broad Ligament Fibroid; and Dr. J. Lacy Firth a Fibroma removed from the abdominal wall.—Dr. Waldo read a paper on the Causes and Treatment of Baldness, and Dr. J. O. Symes read a paper on Cytodiagnosis.—A number of the members present discussed the cases, specimens, and papers.

WIGAN MEDICAL SOCIETY.—A meeting of this society was held on March 9th, Mr. J. Chronnell, the President, being in the chair. After the usual preliminary business was over a paper on Puerperal Fever was read by Dr. T. B. Grimsdale, lecturer in clinical gynæcology at the University of Liverpool and gynæcological surgeon at the Royal Infirmary, Liverpool.—A discussion followed in which Dr. J. Blair, Mr. M. G. McElligott, Mr. Bowen, Mr. E. H. Monks, Dr. R. P. White, Mr. H. Litherland, Dr. J. Jackson, and the President took part.

UNIVERSITY OF OXFORD.—Attention is called by the secretary of the Board of Faculty to the fact that the new regulations as to the production of certificates of instruction on entering names for the examinations for the degree of Bachelor of Medicine will take effect at the next examination—viz., in Trinity term, 1905, commencing on June 22nd. The necessary forms are supplied by the secretary to the Board of Faculties, Old Clarendon-building, Broad-street.—The following are the degree days appointed for next term: Thursday, May 4th; Thursday, May 25th; Thursday, June 22nd; Thursday, June 29th; and Saturday, July 8th.

THE CHEMISTS' EXHIBITION.—The annual exhibition was held this year in the Covent Garden Theatre and was formally opened by Mr. Glyn-Jones on March 13th. The movement commenced ten years ago, still enjoys considerable patronage, and is no doubt of great interest to pharmacists, perfumers, and others. Amongst the visitors were several medical men who take this convenient opportunity of making notes on the advances of pharmacy and of becoming acquainted with new medical and pharmaceutical appliances. The arena of the theatre afforded ample space for the exhibits which were made as attractive as possible. Apart from trade interests there were several exhibits worth seeing from a purely hygienic and scientific point of view.

Reviews and Notices of Books.

The Diseases of Women: a Handbook for Students and Practitioners. By J. BLAND-SUTTON, F.R.C.S. Eng., and ARTHUR E. GILES, M.D., B.Sc. Lond., F.R.C.S. Edin. Fourth edition, with 127 illustrations. London: Rebman, Limited. 1904. Pp. 520. Price 11*s.* net.

IN the fourth edition of this handbook of Diseases of Women the authors have managed to incorporate much new material without increasing the size of the work. We notice a considerable number of additions and alterations in various chapters. In discussing malformations of the reproductive organs they have adopted the following classification—viz., (1) malformations by arrest of development; (2) malformations by the persistence of septa; (3) malformations by excessive development; and (4) malformations by a combination of the male and female characteristics. In discussing the question of the malignancy of uterine fibroids they point out that the great defect of nearly all such recorded cases is the absence of a complete history. Sarcomata are so prone to give rise to secondary deposits that any case which runs its natural course to a fatal issue might be expected to show secondary nodules in the lungs at any rate. As they point out, the term fibroid includes several kinds of tumours, amongst which there is a soft jelly-like uterine tumour which is met with most commonly in the interval between the twenty-fifth and the thirty-fifth year, associated with profuse metrorrhagia and profound anæmia, and which on section resembles a mass of myxomatous tissue. This tumour is often described as a degenerate fibroid but is in reality a primary condition and serves to bridge the interval between the true fibromyoma and the sarcoma of the uterus. We gather that the authors do not believe in the occurrence of the malignant degeneration of a fibroid tumour of the uterus but rather are inclined to think that in all such instances the growth has been a malignant one from the very commencement. Two very interesting cases of carcinomata of the Fallopian tube are recorded and illustrated in this edition. In the instructions given for the conduct of gynæcological operations the dictum is laid down that "nothing should be allowed inside a patient's abdomen which has not been boiled especially for the operation, and as the surgeon's hands cannot be sterilised by heat he should wear rubber gloves which have been boiled."

The work retains its main characteristics; it is clearly written and although it does not enter into any great detail upon many of the subjects treated, yet it is a good example of its class. The opinions are mainly those of the senior of its two authors and while we may not agree with all that he teaches we are certainly not left in any doubt as to his views upon many debateable points in gynæcology.

About Dreaming, Laughing, and Blushing. By Sir ARTHUR MITCHELL, K.C.B. Edinburgh and London: William Green and Sons. 1905. Pp. 157. Price 5*s.* net.

IN this little book the author has stated opinions which he holds and has endeavoured to support them with fairness. He recognises that they are only opinions but ventures to think that, even if they are not fully accepted, they may still be regarded as worthy of consideration because of their having "a possible useful outcome in the general study of mental disorders." The study of dreams appears to Sir Arthur Mitchell to lead to the following opinions among others:—That there is no such thing as dreamless sleep; that thinking is involuntary—to the extent, at least, that we cannot cease to think under any order of the will; that thinking never ceases during life and is essential to the continuance of life; that dream-thinking is uncontrolled and undirected by the will, is never coherent and concentrated, is more or less of the same character as thinking in delirium, and constitutes a state of mental disorder which is not a state of disease; that thinking when awake is always to some extent under the control of the will by which it is directed to a subject and kept there; that there are many degrees of sleep and wakefulness and as many degrees of efficiency in the controlling power of the will; that thinking, like breathing or the beating of the heart, does not cause a sense of weariness, though all three have a wearing-out effect on all the organs concerned; that the will's inhibiting and directing work brings fatigue and a demand for rest; that the will finds this rest and refreshment in sleep; and that the frequent occurrence of a state of disordered mind in sleep does not do us harm but on the contrary does us good. Some of the conclusions which seem to be the outcome of Sir Arthur Mitchell's study of laughter are as follows:—That laughter is a state of mental disorder which is evidenced by the irrational and purposeless phenomena attending it and the absence during their continuance of all coherent thought; that these short states of mental disorder, which may be very frequent, do not hurt us, but on the contrary do us good; that laughter is not, even usually, the expression of unalloyed pleasure and joy; that on the contrary it very often expresses states of mind which are mean, contemptible, and cruel, the moral faculty being then in abeyance; and that laughter so arising is only pardonable on the view that it is a state of mental disorder. The study of blushing seems to lead to the following conclusions:—That blushing is always the expression of a special mental state; that it causes another mental state which is a state of mental disorder; that blushing is involuntary, is the exclusive property of man, and occurs in all races of men; that it abounds in the young and practically ceases in advanced age; that the inhalation of nitrite of amyl causes the face to flush and that this seems to be attended with the same confusion of mind as that which attends the blush of shame; and that the flush of anger and many other flushes are altogether different from the blush of shame.

LIBRARY TABLE

Atlas and Epitome of General Pathologic Histology. By Docent Dr. HERMANN DURCK of the Pathologic Institute, Munich. Authorised translation from the German. Edited by LUDVIG HEKTOEN, M.D., Professor of Pathology in Rush Medical College, Chicago. With 176 coloured illustrations and 36 figures in black and colours. London, Philadelphia, and New York: W. B. Saunders and Co. 1904. Pp. 371. Price 21*s.* net.—The atlas before us contains a large number of admirably drawn reproductions of microscopical preparations illustrating conditions met with in morbid histology. They are beautifully reproduced and afford a striking example of the lithographer's art. The text contains a condensed summary of the principal facts of pathology; the statements contained in it appear to be correct and brought up to date. Having thus paid a well-merited tribute to the author—we may add the translator—to the artists, and to the publishers whose enterprise is so strikingly exemplified in the production of such a book at the price named above, we may confess to a feeling of doubt as to the exact place which such a work is expected to occupy in medical education. We can imagine a good and a bad use to which it may be put. It may rightly be used by the teacher of morbid histology to illustrate to his class conditions of which he does not happen to possess specimens at hand. It may wrongly lead students to rely upon its aid as a means of "cramming up" a certain number of pathological appearances with a view to "spotting

specimens" in examinations, to the neglect of the study of actual preparations. In this latter case we think that disaster will result, since in an atlas of this kind it is impossible to preserve any strict perspective in the choice of illustrations, and rare and curious conditions appear on an equal footing with common and important morbid states. This peculiarity is at once evident from the fact that just one-third of the whole book and practically half the number of plates contained in it are devoted to the illustration of different varieties of tumours, a quantity quite out of proportion to their importance from a student's point of view. Indeed, here the very minuteness of the classification will lead to confusion in the mind of one not already well versed in the subject. Hence, while we advise those who have the opportunity of looking into this atlas to avail themselves of it, we cannot think that students with but a limited amount to spend on books will find it worth while to purchase the volume.

The Splendor of the Human Body. By the Right Rev. C. H. BRENT, D.D., Bishop of the Philippine Islands. London, New York, and Bombay: Longmans, Green, and Co. 1904. Pp. 60. Price 2*s.* 6*d.* net.—This is a thoughtful and scholarly address upon the body considered not merely from the physical point of view but as "the living dress" of the soul. Bishop Brent urges in plain and simple language that the body is the crown of creation in this world and that it is indissolubly linked with the rest of creation. From this it follows that the body should be used with due care; that it should neither be made the toy of the passions on the one hand nor considered as the enemy of the soul on the other. This last, of course, was the error into which the Ascetics fell. Beginning with asceticism (ἄσκησις) in its original meaning—i.e., discipline or training—they gradually came to regard the body as an evil; then came the inevitable rebound and excess in the other direction. Bishop Brent ends with an exhortation to self-restraint and we consider his little book to be one which all parents may study with advantage and may give to their children.

Obstetric and Gynecologic Nursing. By EDWARD P. DAVIS' A.M., M.D., Professor of Obstetrics in the Jefferson Medical College and Philadelphia Polyclinic; Obstetrician and Gynecologist to the Philadelphia Hospital. Second edition; revised. With numerous illustrations. London, Philadelphia, and New York: W. B. Saunders and Co. 1904. 12mo, pp. 402. Price 8*s.* net.—In issuing the second edition of this useful book the author has taken the opportunity of thoroughly revising it and adding a certain amount of new matter. No very marked alteration has been made in the character or the scope of the work. It has evidently met with a fair amount of success and, as we pointed out in our review of the first edition, it forms a useful and practical text-book for nurses. There are many points of considerable practical value contained within its pages and Professor Davis has been successful in limiting his information to such an amount as may fairly be comprehended by any intelligent nurse.

The Plenum or Propulsion System of Heating and Ventilation. By HAROLD GRIFFITHS, A.R.I.B.A., F.S.I., M.S.I. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1905. Pp. 107. Price 4*s.* 6*d.*—With regard to ventilation there exist now broadly two schools—one which favours ventilation by so-called natural means and the other which maintains that mechanical ventilation either by propulsion or extraction is alone satisfactory. However this may be, practical experience would appear to be deciding in favour of the propulsion as opposed to the extraction system of mechanical methods. There can be no doubt that the plenum or propulsion system of heating and ventilation is making progress and the installations which have been fixed in this country have so far given very satisfactory results. There are certain minor points connected with its supervision, however, which if neglected may raise a prejudice. Mr. Griffiths indicates these apparent defects. As he shows, they only exist so long as carelessness in working the system occurs. Complaint is often made, for example, as the author points out, that the plenum system gives rise to "bad air." When such a complaint is justified it is often due to a neglect to keep the apparatus clean. Filth, for example, accumulates in the nuts on the batteries and elsewhere and instead of being washed away on the first opportunity is allowed to remain until it is carried with the air into the rooms. As another example may be quoted the omission for three months of a man in charge of the installation to keep the filtering and humidifying screens supplied with water. Of course, such inexcusable negligence will easily account for unsatisfactory results. We have had occasion to visit public buildings in which the plenum system has been installed and have invariably found the process to be working satisfactorily and to the health, comfort, and convenience of the occupants of the various rooms and offices. But, as the author is careful to point out, "superior supervision and occasional surprise visits at irregular intervals are essential to insure the proper and efficient working of a plenum installation." It is often the case that any prejudice that may be entertained against the system is overcome when the efficiency of the installation is maintained. The author evidently has practical experience on the subject and deals with all the technical points concerned in a clear and intelligible manner. While acknowledging that defects may arise he is strongly in favour of the system. The book is a useful guide on the subject.

New Inventions.

A SELF-EMPTYING SPITTOON FOR RAILWAY CARRIAGES.

SPITTOONS of the pattern shown in the illustration are fixed in the floor of a railway carriage so that their upper surface is flush with the general level of the floor. The pan or container is of a conical shape and open at the bottom but in order to prevent any upward current of air while the train is in motion there is a hinged flap which closes the

aperture. When the pan is partly filled with saliva or other expectorated matter the weight of the contents causes the flap to open so that the liquid is emptied on to the permanent way and the bottom is again closed automatically. For the

convenience of smokers and others several spittoons are placed in the floor of each carriage where they are used, and dripping umbrellas may also be held with their tips in the perforated bowl. The dimensions of the spittoons are five and three-eighths inches in diameter and four and a quarter inches in depth; they are made of malleable cast iron and weigh one and a half pounds. They have been in use for some months on the Tynemouth branch of the North-Eastern Railway. Railway passengers who spit freely are not usually refined in their manners but when they get into the habit of using the spittoons the result will be a great improvement in the cleanliness of the carriage floors and less danger from the dissemination of tuberculous sputum which after drying has become converted into dust. Further information relative to the spittoon may be obtained from Mr. George Graham, Westminster Chambers, 43, Victoria-street, London, S.W.

A NASAL INHALER FOR THE ADMINISTRATION OF ETHER.

WITH the inhaler represented in the illustration prolonged anæsthesia may be obtained by means of ether administered through the nasal passages during operations in or about the mouth and particularly in extensive dental extractions. It consists of a nose-piece, A, which rotates through half a circle and is fitted with an indiarubber pneumatic cushion connected with a tubular chamber B in which lies a loosely fitting sponge, the other end of the chamber being fitted with the angle-joint C and the indiarubber bag D of a Clover's inhaler. In the chamber B there is a large aperture which serves the purpose of charging the sponge with ether and which can be closed by a sliding sleeve. There is a small hole closed by a sliding cover C at the angle-joint of the bag;

through this a charge of ethyl chloride can be squirted into the bag for the purpose of inducing anæsthesia before the ether is added if so desired. For a short operation such as the extraction of all the teeth the uncharged inhaler is placed over the nose, the bag hanging over the patient's head, the patient being instructed to keep the mouth closed and to breathe only through the nose. About two cubic centimetres of ethyl chloride are then squirted into the bag through the small aperture C which is immediately closed. As the patient becomes anæsthetised the large aperture B is opened, about two drachms of ether are poured on the sponge, the opening is again closed, and the patient passes into deep ether anæsthesia without any struggling or choking. The mouth is immediately opened and the operation proceeded with, the inhaler being kept in position until the operation is over and the operator working as deliberately as he desires. Patients as a rule recover very quickly (in a few minutes) and without sickness. For longer operations such as that for ununited fracture of the jaw, it is perhaps wiser to induce a full deep anæsthesia with an ordinary inhaler and when the operation is about to commence to maintain anæsthesia with the nasal inhaler, charging it however with about an ounce of ether in the indiarubber bag as the sponge chamber will not hold sufficient ether for prolonged administration. During an operation for ununited fracture of the lower jaw in a powerful man addicted to alcohol perfect anæsthesia was in this way maintained without any trouble for over half an hour, the surgeon being in no way impeded or interrupted in his work. During the past nine months the inhaler has been tried in many dental and various surgical cases with surprising and unvarying success. The whole apparatus may be sterilised by boiling. The makers are Messrs. Arnold and Sons, West Smithfield, London, E.C.

H. C. DRURY, M.D. Dub.
Dublin. M. F. THOMSON, L.D.S. Edin.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary meeting of the Council was held on March 9th, Mr. JOHN TWEEDY, the President, being in the chair.

Mr. W. H. A. Jacobson and Mr. Bilton Pollard were introduced and having made declarations in the terms of the oath prescribed by the Charter of 1800 were admitted members of the Court of Examiners.

A report was read from the Board of Examiners in Dental Surgery recommending the adoption by the Council of synopses indicating the range and extent in the subjects of anatomy, physiology, surgical pathology, and surgery for candidates for the licence in dental surgery.

The Senior VICE-PRESIDENT reported the delivery of the Hunterian Oration by the President on Feb. 14th.—The best thanks of the Council were given to the President for his oration and he was requested to publish it.

The PRESIDENT reported the delivery of the Erasmus Wilson lectures by Mr. Leonard S. Dudgeon and Mr. Percy W. G. Sargent on Peritonitis and he also reported that Mr. Stephen Mayou had delivered a course of three lectures on the Changes Produced by Inflammation in the Conjunctiva.

The PRESIDENT reported that in pursuance of the provisions of the Bradshaw bequest he had chosen Mr. Henry T. Butlin as Bradshaw lecturer for the ensuing collegiate year.

The Chairman of the Library Committee reported that the President had presented to the College eight volumes of fifteenth century books, forming a valuable and interesting addition to the collection of books of that period in the library.—The best thanks of the Council were given to the President for his gift.

The PRESIDENT reported that Sir Gilbert Blane's medals had been awarded to Surgeon Sidney Thomas Reid, H.M.S. *Vestal*, 1901–02, and Surgeon Robert William Glennan Stewart, H.M.S. *Latona* and *Thames*, 1903.

In accordance with the report of the Museum and General Purposes Committees it was resolved not to instal the electric light in the museum at present; this decision was arrived at chiefly on account of the cost.

Dr. J. WARD COUSINS presented a report of the proceedings of the Central Midwives Board for the past year. The report contained many matters of great interest and among these may be specially mentioned the necessity which exists for an amendment to the Midwives Act providing for a fair scale of remuneration of the medical men who may be summoned in cases of difficulty and danger by midwives.—The best thanks of the Council were given to Dr. Ward Cousins for his report.

A letter was read from the Lord President of the Privy Council transmitting a copy of a communication received from the Russian Chargé d'Affaires in regard to the Fifth International Congress on Gynæcology to be held at St. Petersburg in September, 1905.

After discussion it was resolved that the clause in the regulations of the Council relating to meetings of Fellows should be further suspended and that in place of the meeting of Fellows a subscription dinner should be held at the College on the day of the Council election in July next.

The PRESIDENT reported that he had had the honour of dining with His Majesty the King at Buckingham Palace on March 4th.

THE LANCET.

LONDON: SATURDAY, MARCH 18, 1905.

Hospitals in their Relation to the Public and the Profession.

THE conference on Hospital Reform recently held under the auspices of the British Medical Association is one of many indications of the important movement now in progress for the organisation of the medical relief of the sick poor. If the actual conclusions arrived at by the conference seem only to touch the fringe of a great subject the facts that unanimity was secured on some points and keen interest was manifested in many more should give satisfaction to the responsible organisers of the meeting. Satisfaction may also be felt that it was found possible to bring together from all parts of the country many of the proverbially busiest of laymen who have most time and are willing to devote a considerable proportion of it to hospital administration. The meeting together in such large numbers of busy laymen and busy medical practitioners to discuss hospital matters is worthy of note, not only because of its possible results but because of its probable cause. No mere desire to exchange views on methods of heating and ventilation, or even on a suitable age-limit for the retirement of the medical staff, would have brought together in London representatives of hospitals in Scotland and Wales as well as in the most distant parts of England. If medical practitioners were instrumental in seeking this conference because their profession is feeling the intolerable strain of providing without payment the constantly increasing demands for hospital treatment the laymen were no doubt anxious to discover some means of relief from the equally intolerable strain of collecting money to meet the same demands. So long as the limits of medical charity can be kept within reasonable bounds the governors and the staffs of our hospitals find mutual satisfaction in administering to the relief of suffering. They are at the present time being drawn still more closely together in an attempt to deal with developments which appear almost overwhelming. The exact direction of their united efforts must be a matter for anxious and careful consideration, for success in one direction may mean disaster in another. The multi-millionaire who would free our hospitals from debt and allow for such extensions as would meet all present claims for free medical relief might, while delighting the hearts of the governors, run a considerable risk of straining the charity of the profession to the breaking point. For it must be clearly remembered in dealing with this question that whatever success attends the labour of the governors of hospitals in securing funds for increasing their charity necessarily involves a proportionate increase in the unpaid labour of the medical profession.

It is impossible here to refer in detail to the motions submitted to the conference. Most of them were accepted with but slight modification. One of considerable importance was, however, negatived. To this we wish to draw particular attention on account of the divergent views which were expressed during its discussion. The motion was worded as follows: "That no charge for the treatment of any patient shall be made." To most professional readers it will be obvious that the object of the committee in insisting on the absence of payment is to impress upon patients that the hospital is a charity, relying upon their sense of honour not to avail themselves of it unless justified by their circumstances. While compelled by experience to doubt whether the sense of honour in these conditions is an effective deterrent of abuse, this point of view seems to be clear and it was apparently so regarded by the committee, for no great pains were taken to explain the motive underlying the proposal. No wonder, perhaps, that this motion was negatived when some of the laymen regarded the imposition of a small charge for medicine as a useful means of preventing that overcrowding of the out-patient department to which general practitioners are supposed to object. Perhaps, too, the "sense of honour" argument would in any case have been a little discounted by a subsequent proposal to institute inquiries into the financial fitness of every applicant for hospital relief. It is difficult to rely on the effect of trusting to a man's sense of honour when at the same time you are taking active steps to secure the same end by other means. For our part we think that due inquiries into an applicant's financial fitness are more likely to secure that charity shall be properly dispensed than is the most elaborate attempt to bring home to the applicant the dishonour of accepting unneeded charity.

While regarding with great satisfaction any attempt to inform the public, and especially the lay administrators of hospitals, as to the view of the profession with respect to medical relief, we cannot help regretting that the conference was not made use of to arrive at a common understanding of some general principles. The relations of hospitals to the medical work of the Poor-law and the proper attitude of hospital committees to paying wards were subjects distinctly ruled out of the purview of the conference, though they doubtless influenced both the discussion and the voting on some of the motions. At the end of the conference representative laymen were nominated to consider further the resolutions with the committee of the British Medical Association preparatory to making some authoritative statement to the public. It is greatly to be hoped that this joint committee will take a wide view of its reference and will look a little more deeply into the origin of our present troubles with the object of securing a more drastic and permanently effective treatment. No scheme of hospital reform can be said to go to the root of the matter which does not accept as a fundamental proposition that an attempt should be made to prevent the overlapping of hospitals, on the one side, with the Poor-law and, on the other side, with provident dispensaries. Absolutely necessary reforms are prevented in the Poor-law and in the provident system of medical relief by the competition of voluntary hospitals. The State is encouraged to neglect its obvious duty to sick paupers by the knowledge that the charitable public can persuade the medical

profession to do for nothing work which should be undertaken by a properly paid Poor-law medical service. General practitioners are handicapped in their attempts to develop the provident system amongst the working classes by the constantly increasing competition of the free out-patient departments of hospitals. From want of proper organisation the hospitals are actually preventing developments which if encouraged would relieve them of a great burden of work. And this work which the hospitals unnecessarily take from the Poor-law and from the private practitioner could be better done by these agencies. The Poor-law can afford, must afford, to keep a pauper until he is once more an effective worker, whilst the general practitioner can follow a provident patient to his home whenever the nature of his illness demands it. Any attempt to prevent this overlapping of different forms of medical relief must be preceded by an attempt to define the proper sphere of hospital work. It is said that it baffled the most fluent French scholars amongst us to explain to our Parisian colleagues during their recent visit to London the essential difference between a Poor-law infirmary and a voluntary hospital. In view of the growing tendency of municipalisation it is no mere academic duty to establish the *raison d'être* of the crowning glory of the metropolis. In the interest of medical education no less than the advancement of medical science it is much to be desired that the great hospitals with medical schools attached should be placed upon a basis of absolutely unassailable public utility. Their proper position is not in competition with Poor-law infirmaries and with charitable organisations through which the general practitioner deals with ordinary cases of illness, but as consultative institutions accessory to these other agencies, where special resources required in selected cases shall be available for every class of patient, whether pauper or private, who cannot afford to pay adequate fees to secure such special resources elsewhere.

In endeavouring to define the proper functions of hospitals and their relation to other medical agencies it is to be hoped that the profession may get clearer ideas of its own proper relation to medical charity. A great deal of the difficulty of controlling medical charity would not exist had it not become an established principle that the charitable public who support hospitals can always obtain medical treatment for the inmates without payment. Whether it would be better for the public and the profession to depart from this principle we will not now discuss. It is enough that it exists and that its existence complicates all questions of hospital reform. It is responsible no doubt for a very natural desire on the part of the profession that hospital treatment should not be indefinitely increased. Although every medical man who accepts a hospital appointment thoroughly recognises the fact that he will not be remunerated for the work which he is called upon to do he does not perhaps sufficiently consider his position from the broad aspect of its economic effect upon the profession at large. Every dock labourer understands the result upon the labour market of his individual act in accepting less than the standard wage and many a one will starve out of loyalty to his class rather than commit this crime against his brethren. The practice of medicine is raised above all commercial considerations by the fact that persons who are sick excite professional as well as public commiseration. But if we urge upon the governors of hospitals that it is not such true charity to throw medical relief broadcast to all comers as to inculcate habits of thrift by encouraging patients to become subscribers to provident institutions, should not medical practitioners remember that their duty to their profession may make it necessary sometimes to forego the satisfaction of placing their services without remuneration at the disposal of any charitable institution that asks for them? These considerations involve large questions of professional policy to which medical men have in the past paid too little attention. It is by their proper study and solution that every class of the community can secure the services of a strong, independent, and generous profession. For the development of our great voluntary hospital system on right lines careful coördination with other agencies having similar aims must be secured, the charitable public must learn to exercise its charity with the wise discretion which regards the interests of the medical man as well as of the sick patient, whilst members of the profession must recognise their obligations not only to themselves and to each other but to the medical profession as a whole and to its various branches.

Specialism.

THE question of the proper uses and limitations of what is commonly called specialism is one which is intimately bound up alike with the progress of medical science and with the improvement of medical practice and one which therefore deserves the earnest consideration of the profession. It is obvious, on the one hand, that specialism may be conducive to real advancement in certain directions; and it is at least equally obvious that the great majority of mankind must always be dependent upon the ministrations of physicians and surgeons who regard the whole of the human body as falling within the sphere of their contemplation. If specialism were even now as pronounced as certain sections of the public desire to make it, it would be almost necessary to establish a class of practitioners whose specialism it should be to advise patients as to the specialist whom they should consult and thus to save them from the calamities which might be incidental to seeking the advice of a "liver" man when the stomach was the organ primarily at fault or the advice of a "skin" man when cutaneous troubles were merely consequences of neuritis. The good to be accomplished by specialism is always liable to be counterbalanced by the evils which may arise from comparative neglect of the "special" branch by the general practitioner, who may thus fail to be properly prepared for duties which he may reasonably be expected to discharge. He is in danger of feeling when a few men have possessed themselves, so to speak, of some particular branch of the art of healing that their studies in that direction have been carried beyond his depth and that it is useless for him to attempt to follow them. Even in the three specialisms which have long been regarded as legitimate—ophthalmology, otology, and dentistry—and which have a broad foundation in forms of knowledge or in methods of treatment which are not required in other

departments, ill consequences of this description are unfortunately not unknown. Hundreds of cases of glaucoma have been suffered to pass into incurable blindness, hundreds of cases of defective hearing in childhood have been suffered to go from bad to worse, and hundreds of cases of gastric sepsis arising from dental caries have defied all medical treatment simply because the practitioners originally consulted have never thought it their duty to be acquainted with the respective specialisms concerned. To this picture, it need hardly be said, there has been a reverse and specialists consulted for manifest defects of the organs which they were supposed to have appropriated have been known to overlook the fact that these defects were merely symptomatic of grave changes in other portions of the body. The advantages of specialism, whatever they may be, are sensibly diminished when those who follow it are tempted to neglect general medicine and surgery and when physicians and surgeons are tempted to regard the so-called special branches of the profession as matters of which they may contentedly remain in comparative ignorance.

Considerations of this kind are becoming more important now than they have been at any earlier period in the history of the healing art, by reason of the vast extension which has recently been given to the applications of physical science to medicine and of the ever-increasing amount and complexity of the knowledge which practitioners are called upon to possess. In the middle of the last century a natural philosopher was regarded as a person from whom a fair acquaintance with "science" as a whole might reasonably be anticipated and even at a still later date the President of the British Association for the Advancement of Science was expected to review the progress of the year in almost every department of inquiry. To-day it is commonly admitted that he has enough to do in reviewing the progress in which he himself has been more immediately concerned; and the consequent division of labour has undoubtedly been contributory to a more rapid general advancement. In medicine the conditions have been to some extent the same but the results do not promise to be equally advantageous. The fact that the science as a whole is passing beyond the grasp of individual acquirements, in whatever degree it may be true, must to some extent be a source of danger rather than of advantage to the public; and with possible exceptions in favour of the specialisms which are based upon some extraneous branch of knowledge, as ophthalmology upon optics or otology upon acoustics, the benefit to be derived from specialism in the future is likely to be proportionate to the degree in which its researches are made to enrich medicine in its entirety and to be contributory to the increased efficiency of the general practitioner. In order to secure the attainment of this end its developments and its claims will alike require to be watched with considerable care and to be encouraged or recognised almost in proportion to the degree in which they are calculated to promote the attainment of the end proposed. The professors of subordinate branches of science have always displayed some tendency to lose themselves in over-refinements, in verbal distinctions, and in obscure nomenclature; and they have seldom been free from a proneness to exaggerate the value and the importance of the studies to which their own lives have been devoted. In so far as these characteristics attach themselves to so-called special branches of medicine or of surgery it should be the business of the profession as a whole to endeavour to arrive at a just estimate of their actual importance and to treat and to recognise them accordingly.

The foregoing observations have to some extent been suggested by the position which certain practitioners have recently assumed in relation to the diseases of children. Children under 15 years of age form rather more than a third of the populations of civilised countries and they are not only the immediate causes of far more than a third of the demands which are made every day upon medical practitioners but the whole of their future lives, and even the lives of their offspring and of future generations, may depend upon the way in which the demands thus arising are met. No division of medical science can be more important than that which deals with the differences, in relation to disease and treatment, which exist between children and adults; nor, on the other hand, can there be any which it is more important for the profession as a whole to master. We publish this week a paper by Dr. FRANCIS WARNER which indicates with how much promise the principles of physiology may be applied for the elucidation of the natural development of the functions of the nervous system and *a fortiori* for the prevention or cure of their derangements; and we have before us two reprints from the numbers of *American Medicine* for November and January last respectively on the History of Pediatrics and its Relation to other Sciences and Arts and on the Foundations and Aims of Modern Pediatrics, which may perhaps serve to illustrate some of the dangers of over-specialising. Our American friends have seen fit to adopt styles of language and of orthography which seem to us to indicate a very defective appreciation of the value as a national possession of the language of MILTON and of ADDISON; and we are not prepared to condone the neglect of etymology which is displayed in "fetal"; while against "pediatrics" or "pediatrist" we must enter the most energetic protest of which we are capable. If we must have either word at all, especially the latter, it should surely be "pædiatrist," should show that it is derived from παῖς and not from *pes*, and that it is intended to mean a child's physician or surgeon and not, as it appears to do, a corn-cutter or a bunion-curer. But these objections seem comparatively trivial when compared with the manifest tendency of the writers of the articles referred to, one of which is by an American and the other by a Viennese physician and both of which were read at the great exhibition of last year at St. Louis, to separate the consideration of the diseases of children from the domain of general practice and to regard it as a "special" branch of study. In this country, at least, the general practitioner must emphatically be a child's medical attendant and must be prepared to place the most useful means of diagnosis and the most approved methods of treatment at the disposal of those who, both numerically and in relation to the character and the significance of their ailments, are usually the most important section of his patients. We shall receive with nothing but gratitude any veritable contribution to a better understanding of children's diseases from whatever quarter it may come, but we are not

prepared to welcome either an envelopment of old knowledge in new and somewhat illiterate jargon or a consecration to specialists of researches which should be rendered available for the service of mankind.

The Case of Miller v. Miller and Fowler.

THE President of the Divorce Court in dismissing Dr. CHARLES OWEN FOWLER, with costs, from the divorce suit of MILLER *v.* MILLER and FOWLER, said that he was about to use a common form of expression, but that he thought it was due to Dr. FOWLER to record that he left the court without a stain upon his character. Dr. FOWLER has, indeed, passed unscathed through one of the severest ordeals to which it is possible for a man to be submitted. The story has appeared at some length in many papers, but it contains lessons for medical men that may make its repetition useful. The petitioner sought to divorce his wife and in addition to evidence which might be regarded as formidable proceeding from himself, from servants, and from others, the wife went into the witness-box and swore that she had committed adultery with Dr. FOWLER, the medical man who for some time had constantly attended herself and her children. Dr. FOWLER had but one protection against the combination of flat perjury, gross exaggeration, prurient suggestion, and stupid error which for a time threatened to destroy his professional career and to ruin his life. He had carried on the profession of a medical man honourably and in the business-like manner which is a necessary element of success in the conduct of a general practice of any dimensions. It was the business-like methods of his life that served as his safeguard. The self-accusing wife and others proved that many letters or notes had passed from her to her medical man, followed by visits on his part to her at her house. The medical man's professional records showed that these visits were of a strictly professional nature, while his wife (who never wavered in her confidence in her husband), his partner, and his dispenser showed conclusively that the written communications were only requests for Dr. FOWLER'S attendance. They were as free to open these notes as Dr. FOWLER himself, and his partner responded to them when the member of the firm to whom they were addressed was unable to do so. Dr. FOWLER, in his own evidence, admitted frankly that he had been in the MILLERS' house perhaps half a dozen times in a non-professional capacity and he took an obviously honest course in dealing with the statements of Mrs. MILLER as to his relations with her. He suggested no delusions, hysterical or otherwise, on her part. He refused to speculate as to the psychological causes which might have induced her to enter the witness box in order to declare herself an adulteress and him her paramour. He denied the truth of her story absolutely and entirely, and if it could only follow that it was due to "pure wickedness" on her part, as her counsel put it to him, he was content to leave the matter there. To alleged details of his conduct, which if true might have corroborated her tale, he was able to give an equally unequivocal answer. He was invited to say that it was merely a coincidence that the petitioner returning earlier than usual upon a particular occasion had found him in the house, but his answer was a direct denial that any such incident had ever taken place. And even his carefully kept register of professional services rendered and the testimony of colleagues, friends, and wife were almost insignificant in effect compared with the fearless manner in which Dr. FOWLER gave his evidence, without suppression or exaggeration. It is such evidence as this that no cross-examination can seriously affect.

We have used the word business-like in reference to the manner in which Dr. FOWLER'S practice was carried on, and we would call attention to the important bearing which this had, not because his written records would be evidence in his favour—for this they were not—but because they enabled him, and those with him, to refresh their memories as to incidents which might otherwise have been forgotten. Owing to the orderly manner in which Dr. FOWLER'S diary was kept he and his witnesses were able to speak with confidence and accuracy as to the date, hour, and cause of every attendance that he rendered. Accusations by women against men are easy to make but hard to refute. In the case of medical men they are for obvious reasons infinitely easier to make than where members of other professions are concerned and to dispel them is even more difficult. The evil-minded are ever ready to believe that what seem to them opportunities for misconduct are not unlikely to be taken advantage of. The danger to the medical man is always present so long as he follows his calling; no prudence on his part can enable him to escape it altogether. He can only do his best to avoid everything that can give the smallest cause for calumny, and endeavour to secure esteem by the unostentatious and industrious performance of his professional duty and by living at all times the life of an honourable citizen. Then, if he should have the terrible misfortune to find himself in the position of Dr. FOWLER, he will be able to face the trial with manly confidence in the experience and in the upright impartiality of his country's judges, as well as with faith in the desire of a British jury to do justice between man and man. We heartily congratulate Dr. FOWLER upon the complete exoneration which he has been able to obtain from the foul charges brought against him.

Annotations.

"Ne quid nimis."

THE DISPOSAL OF THE SLAIN IN BATTLE.

THE appalling carnage in the Far East raises the very serious question as to what will be done as regards the disposal of the many thousands slain. Some thousands of tons of human flesh must be lying strewn round the ancient capital of Mukden and it would seem almost incredible that natural agencies could be trusted to remove this enormous pile of dead and to render it inoffensive, not to say harmless, to the living. Fortunately intense cold prevails which will stay the putrefactive process for a time, but sooner or later the opposite extreme of temperature must come and then this awful waste of human life will become a disgusting menace

to health. Presumably there is an unlimited area in which the corpses may be interred but it will be a vast cemetery and the task of burying will take a long time to complete. Still, it is well known that the soil possesses a very remarkable power of disintegrating and purifying animal material through its countless microscopic agencies; these, however, it may be noted, are only found to operate at a very small depth. The cremation of thousands of tons of human flesh would be a gruesome and ghastly undertaking and we imagine that it would be hardly possible on such a dreadful scale. The Japanese, who are so well advanced not only in methods of warfare but in medical science also, will no doubt apply their common sense and wonderful intelligence to this unpleasant problem in a manner worthy of their best traditions.

DO BUILDING BY-LAWS IN RURAL DISTRICTS INHIBIT BUILDING OPERATIONS?

IN a leading article in THE LANCET of Feb. 11th we referred to the circumstance that there were no building by-laws in force in something like 40 per cent. of the rural districts in England and Wales and we used this fact as tending to controvert the contention of those who urge that the enforcement of such by-laws is largely responsible for the rural depopulation which all those interested in the physical well-being of the people deplore. As we stated, it had never to our knowledge been shown that in rural districts without building by-laws the population was increasing whereas in districts with by-laws it was decreasing. The problem of depopulation was, we urged, a highly complex one and the influence of by-laws upon it was not great. It is interesting, therefore, to turn to the last annual report of Dr. R. W. C. Pierce, the medical officer of health of the Guildford rural district, which shows in tabular form the number of new houses built during the last four years in the four parishes with by-laws as compared with the number built in the 14 parishes without such by-laws. The combined area of the first group of parishes is 15,609 acres and the population is 8419, whereas the corresponding figures for the latter (non-by-law) group are 39,716 acres and 12,507 people. During 1901–04 there were 159 houses built in the *four* parishes with by-laws as against 172 in the *fourteen* parishes without by-laws. These figures are instructive as also are some observations made by Dr. Pierce with respect to the erection of wooden cottages. It is a common contention that if the erection of wooden houses were permitted such structures would spring up like fungi all over the country. The experience of the Guildford rural district is as follows: "In all but four of the [18] parishes of the district ..... builders are at liberty to put up cottages of wood or other material than bricks as they please, but no one has yet done so." As Dr. Pierce adds, "the chief objection to wooden structures would be their short life. This could possibly be overcome by sanctioning their occupation for a definite period." Finally, Dr. Pierce shows by another table the number and the situation of new houses for which water certificates were granted during 1904 and such list, as he remarks, suggests that "the proximity of water mains has more to do with the encouragement of building than the absence of by-laws." There is one point in Dr. Pierce's interesting report upon which we cannot quite follow him. He remarks that "the difference in the cost of erection of an average brick cottage in the parishes with and without by-laws probably does not amount to more than a difference of 6*d*. a week in the rent at the most." We doubt, however, whether the capital expenditure necessary to carry out the health provisions of the new rural by-laws of the Local Government Board would be such as to necessitate an interest of 26*s*. per annum; indeed, it is difficult to understand how any modern builder could in these days be persuaded as a commercial undertaking to build a house without some regard to the essentials of health, and the difference between his maximum and the very small requirements of the new model series of by-laws would not, we think, be so great as the estimate given by Dr. Pierce. We are very glad to see that the suggestion which we made in our leading article to the effect that another deputation, consisting this time of those who see the necessity for reasonable building by-laws, should wait upon the President of the Local Government Board has since been acted upon. On Feb. 23rd Mr. Long received a deputation consisting of representatives of rural district councils, trade councils, working men's societies, and democratic federations, and his reply was an admirable exposition of statesmanship. In effect he gave the deputation to understand that he would hear both sides and would act as he thought best in the interests of the public health. Obviously, unnecessary restrictions upon building in rural districts should not be imposed and we are quite in favour of any modifications which will not detract from the essentials of health. We think, however, that a somewhat distorted aspect has been given to the controversy in the lay press and that it is important for the real facts to be made known. One of these facts is that wooden cottages can be erected under the new rural by-laws and the other is that the difference in cost between a cottage erected under those by-laws and a *habitable* cottage erected without such by-laws is very small.

CONDIMENTS.

WHILE it cannot be said that the use of condiments in the daily dietary has found a complete chemical or physiological explanation yet it is, of course, broadly known that in many cases they are essential constituents, for they improve the flavour of more or less tasteless foods and, indeed, promote digestion by exciting the flow of the various digestive secretions. Flavour is undoubtedly a great promoter of digestive success. It is not quite clear, however, why, for example, a person takes mustard with ham, pork, or beef and not with mutton; vinegar with salad or lobster and not with ham or other foods. In generalising, however, it would appear that condiments are chosen to accompany those foods which are less digestible or which are richer than others. Mutton, for example, is more digestible than beef, pork, or duck and it is to these three that mustard is generally added. Vinegar, again, is known to soften the hard fibre of both meat and vegetables; hence it probably renders such foods as crab, lobster, salmon, salads, red cabbage, and walnuts less tough and more digestible. Vinegar in dressing and sauces probably has a similar action. As a rule the increased amount of soluble or extractive matters in a food is in direct relation to its digestibility and nourishing value, not that the extractive principles are in themselves nourishing but because they are appetising and promote the flow of digestive juices. To the man with robust appetite the presence of tasty extractives or the use of condiments is probably superfluous. Bread and cheese and beer form a most enjoyable meal after brisk exercise in the open country air but during sedentary occupation very little relish is experienced for such a simple repast. Hunger is the best sauce but failing hunger the appetite must be coaxed and herein lies the true uses of sauces, condiments, and other aids. The abuse of condiments has its attendant evils. The excessive use of vinegar is calculated to lead to an anæmic condition, while it has an unfavourable influence on gout. Some silly women take vinegar to produce a pale complexion. Similarly, a free indulgence in pepper or mustard, which are both irritants, is likely to have an irritating effect upon the organs of secretion. On the other hand, their moderate indulgence promotes digestion for they act as carminatives.

Highly savoury dishes are incompatible with good digestion and the prevailing preference for liberally garnished "messes" instead of plain, simple food is to be deplored. The habit of partaking of highly seasoned food accounts very largely for the decline in the consumption of light elegant wines of the claret type. The bouquet and flavour of a delicate wine are completely spoiled by rich-tasting sauces or spices. Salt is perhaps the commonest condiment of all and yet man practically stands alone amongst animals as a regular consumer of it in the more or less pure state and as a definite adjunct to his food. Salt is present in most foods but the amount in the majority of cases would not appear to satisfy man's needs or he would not instinctively add more. Moreover, salt may not necessarily exist in the free state in foods of natural origin but may be loosely combined with organic constituents. There can be little doubt that salt plays a greater part than that of a mere condiment in the body, for it possesses solvent powers which, besides "drawing out" the flavour of food, facilitate the absorption more particularly of proteid and thus increase tissue metabolism. The pleasures of feeding would be very decidedly diminished if salt and condiments were banished from our tables. It is noteworthy, moreover, that amongst condiments most of them, whilst favouring the digestive processes, are antiseptic, so that their action tends to counteract any disposition to undesirable fermentation.

CONGESTION OF THE BRAIN IN A CASE OF GENERAL PARALYSIS FORCING THE CEREBELLUM INTO THE FORAMEN MAGNUM.

AT the meeting of the Société Médicale des Hôpitaux de Paris on Dec. 23rd, 1904, M. Faure-Beaulieu reported a case of general paralysis in which a remarkable condition was found post mortem—great congestion of the brain forcing the cerebellum into the foramen magnum of the occipital bone. A man, aged 35 years, was admitted into hospital on Oct. 18th, 1904. He denied having had any venereal disease but he showed signs of old iritis. In 1900 he contracted malarial fever on the Congo. In May, 1904, after a severe financial loss, he took to drink. Instead of being as formerly, calm and well balanced, he rapidly became emotional, irascible, and subject to violent attacks of anger. Soon his power of walking became defective and his legs bent under him. Then his upper limbs became weak. At the end of June he had a slight apoplectiform stroke which was followed by two others in July and by a more severe one in September. On admission he was wasted and cachectic and had an air of hebetude, answering with difficulty questions which were repeated several times before he understood them. His memory was little affected except for recent events. His emotional qualities were considerably altered and he took little interest in his only child who was born a short time before his admission. His muscular power was much enfeebled. He could scarcely stand without support; his gait was staggering but not ataxic; he could not lift an object of any weight and on making an effort he trembled. The tendon reflexes were present. The right knee-jerk was a little stronger than the left and Babinski's sign was present on the right side. Speech was hesitating and accompanied by slight tremor of the lips and the tongue. The Argyll-Robertson sign was not present. While in hospital he twice lost consciousness for a short time. Lumbar puncture was performed on Nov. 20th and did not show any lymphocytosis. His mental condition rapidly deteriorated and the emaciation and the cachexia quickly progressed. Early in December a sacral bedsore formed and on the 11th of the month he died. The necropsy was performed after the injection of formol into the cranial cavity in order to harden the central nervous system. The cerebral hemispheres were abnormally large and the brain weighed 1575 grammes. The meninges were not thickened or adherent. On incising the cerebral hemispheres a large quantity of blood in the form of big drops, which were almost confluent, issued both from the centrum ovale and the central grey matter. The cerebellum was of normal size; its upper surface was flattened but the most striking deformity was shown on its lower surface. The amygdalar lobes formed two elongated projections almost two centimetres long on each side of the medulla and there was a deep groove due to the imprint of the foramen magnum. The spinal meninges were thickened and opaque posteriorly and there was sclerosis of the posterior and lateral columns of the cord. It is noteworthy that the condition of the brain was quite different from that usually described in general paralysis; the meninges were neither thickened nor adherent; instead of being diminished in volume the hemispheres were, in consequence of great congestion, much increased. The condition found in the cerebellum is exactly that described by M. Pierre Marie in cases of abundant cerebral hæmorrhage.[1] He explains the condition as an engagement of the amygdalar lobes of the cerebellum in the foramen magnum as the result of pressure of the cerebrum increased in volume by the hæmorrhage. He attributes the symptoms of apoplexy partly to the consequent compression of the medulla. The present case shows that intense cerebral congestion may produce the same result. In this connexion a case recently published by M. Faure-Beaulieu[2] is of interest. As the result of a large meningeal hæmorrhage on the left side not only was the cerebellum driven into the foramen magnum but by the same mechanism the hippocampal convolution was driven into the aperture in the tentorium cerebelli.

FEBRUARY AT HOME AND ABROAD.

THE search for the sun on the Mediterranean littora[1] and in Italy becomes yearly more unreasonable. Although February was less rigorous than January on the shores of the Mediterranean and in the south of Europe generally, it was a most disappointing month for all who expected either dry or warm weather. The temperature was continuously below the normal, while about the middle of the month there were several days of strong and bleak winds, with snow or sleety rain, and a frost that was only a little less severe than that which prevailed during the early days of January. The remainder of the month was wet in Italy and most often cloudy or dull in the Riviera. February of 1904 was very rainy and was also considered cold but the mean temperature for the month at Naples was 50·5°, at Rome 50·3°, at Biarritz 48·4°, and at the Nice Observatory 47·0°. The coast resorts of Portugal and Algeria were much milder last month than were the other southern regions. The coasts of Portugal were also dry, as is seen by the exceptionally small rainfall at Lisbon, but Algeria was decidedly wet, rain falling on almost every day after the 12th. As is nearly always the case, the resorts of Sicily had a higher temperature than had those in Italy and the Riviera; the general character of the weather, however, was extremely variable and frost was in evidence upon several occasions. The most frosty places were naturally those situated inland: thus at Florence there were as many as 11 nights on which the thermometer fell below 32°. On the 13th it sank to 21°, a lower point than at any station in the English midlands. Even Rome, much farther south and nearer the sea, had nine frosts—just the same number as central England—and Naples had more than any place in the southern counties of England. At the Nice observatory there was but little

[1] Sur la Compression du Cervelet par les Foyers d'Hémorrhagie Cérébrale, Société de Biologie, July, 1899.
[2] Société de Neurologie, Dec. 1st, 1904.

rain or snow and the sky was often clear. The nights and early mornings, however, were more frequently frosty than was the case in London. The only places quite free from frost were Algiers, Lisbon, Scilly, and Jersey, but at Torquay, London, and Biarritz the screened thermometer only just touched 32°. The warmth of the days at Torquay and Scilly was just equal to that experienced at Biarritz and Naples. The thermometrical values at Torquay and Naples were strikingly alike, the chief difference being in the absolute minimum, in which respect the English resort was far superior. With regard to the equability of temperature it is seen that none of the foreign resorts can compare with Jersey and the Scilly Isles and that, excepting Naples, not one of them was so equable as Nottingham and Bath. In England the month was extremely dry and sunny, the number of hours of bright sunshine recorded at Torquay being 35·6 more than during the corresponding month of 1904.

Temperature, Rainfall, and Sunshine during February, 1905.

Stations.	Highest temperature.	Lowest temperature.	Mean maximum.	Mean minimum.	Mean temperature.	Total rainfall in inches.	Number of hours of bright sunshine.
	Degs.	Degs.	Degs.	Degs.	Degs.		
Nice	57	27	52	36	44·0	0·48	—
Biarritz...	59	32	50	38	44·0	2·57	—
Florence	57	21	49	35	42·0	1·83	—
Rome	60	28	51	37	44·0	3·51	—
Naples	56	24	50	40	45·0	4·29	—
Palermo	64	31	56	39	47·5	3·05	—
Algiers	66	37	60	46	53·0	3·36	—
Lisbon	63	39	56	44	50·0	0·12	—
Paris	53	27	46	34	40·0	0·80	—
London...	54	32	48	38	43·0	0·70	60·5
Scilly Isles	54	35	50	42	46·0	1·35	82·0
Jersey	54	33	49	41	45·0	2·18	74·0
Torquay	57	32	50	40	45·0	0·84	98·3
Bath	55	22	48	37	42·5	0·84	71·5
Nottingham ...	56	28	46	35	40·5	0·69	60·0

EYE DISEASE AND BLINDNESS IN THE PROVINCE OF PERM.

THE Ekaterinburg correspondent of the *Novoe Vremya* says that of the 3,100,000 inhabitants of the province of Perm there were in the year 1897 as many as 48,331 patients suffering from eye disease registered in the public hospitals. This, of course, does not show the total sufferings from this class of disease as many do not have recourse to medical aid. Most of the cases come from the foreign elements of the population, who live in the most revolting conditions of primitive filth. Ignorance, superstition, sorcery, and the belief in evil spirits prevail. Most of the foreign settlers live in smoke-blackened huts which are sometimes brushed out but never washed. To wash their faces they take water into their mouths and with the thus augmented saliva they rub their cheeks and eyes, the whole family using the same old rag to wipe it off. The population suffers mostly from scabies and eye disease. The Mahomedans do their regular appointed ablutions but the Baschkirs do not wash at all. Professor Adamyuk and Professor Evetski of the University of Kazan visited several villages of the immigrants and became satisfied as to the prevalence of trachoma. The inspection of some of the Krasno-Uphim schools revealed that 5½ per cent. of the Russian scholars were suffering from trachoma, whilst 21 per cent. of the Baschkir children and 39 per cent. of the Tcheremis children likewise suffered from it. On examination of the eyes of the pupils in the Perm women's gymnasium 10 per cent. of them were found to be affected with trachoma, whilst in the second class alone 20 per cent. were so afflicted. The most deplorable result of these eye troubles is, of course, blindness and here it reaches 4½ per cent., says the correspondent, whilst absolute blindness of both eyes reaches 1 per cent. of all the patients suffering from eye troubles. From these figures it appears that of all the 3,100,000 population of Perm the absolutely blind amount to 7500, or 25 blind to every 10,000 of the population. The Ural Medical Society, on the initiative of its president, Dr. A. Russkich, has built a free eye infirmary in Ekaterinburg called after an ophthalmic surgeon of the Urals, Dr. A. A. Misslaff. The society sought to interest every stratum of the population—towns, villages, manufacturers, and private persons, whose willing help made it possible to raise in two years without the slightest aid from the Government a hospital costing from 50,000 to 60,000 roubles. Some gave money, others land, and so on. The hospital is to be opened in the spring of this year.

MEDICAL SERVICE IN BASUTOLAND.

ATTACHED to the annual report for 1903-04 of the Government secretary of Basutoland just presented to Parliament is a report by the principal medical officer, Mr. Edward C. Long. He says that the general scope and efficiency of the medical work promise to be increased greatly by the completion of the new hospital at Maseru. This hospital, which was opened on May 28th, 1904, contains 28 beds and both its construction and equipment are all that could be desired. There is a growing need for hospital accommodation in the territory, for apart from the diseases ordinarily occurring in the country there is an increasing number of cases of acute disease amongst men returning from the labour centres. Such men often arrive at the camps in an exhausted condition and quite unfit to proceed to their homes. It is therefore highly desirable to have well-equipped hospitals at all the stations. Such a course would undoubtedly entail a considerable outlay both for construction and maintenance but it ought to be remembered that the Government hospitals and dispensaries are partly self-supporting. During the year under review the amount collected in out-patient fees, vaccination certificates, and so on, realised £1930 10*s*. This sum more than covered the cost of drugs and maintenance of patients (£1680 16*s*. 1*d*.). During the year the medical staff has responded to the request of the Cancer Research Committee for specimens of new growths and a considerable number of sections of tumours has been forwarded to the director. A short pamphlet on hygiene has been prepared and translated into Sesuto for use in the native schools. A conference of medical representatives, deputed by the Governments of Cape Colony, Natal, Transvaal, and Orange River Colony, was recently held in Maritzburg. At this conference certain recommendations were made with a view to a common action being taken by the South African Governments for the control of medicine, dentistry, and pharmacy. The support of the Basutoland Government was solicited towards that object and Mr. Long considers that some such control is desirable both as regards the present condition and the future development of the country. Besides the Government medical officers, who are mainly concerned in the administration of the Government dispensaries and hospitals, a few medical men have settled in the country and practise their profession among the natives. No evidence of proper qualifications is required from such medical men nor are their methods of practice subject to the control of any authority analogous to the

medical councils in other colonies. As medical practice by duly qualified Europeans has an undoubted civilising influence, apart from the alleviation of suffering and the treatment and prevention of disease, it seems to Mr. Long to be desirable to guard, so far as possible, against any method in the practice of medicine which might hinder that civilising influence. There is also a very considerable trade in drugs carried on by Europeans who have had no medical training and in some instances large fees are received from natives for advice and medicine.

THE LONDON SCHOOL OF TROPICAL MEDICINE.

IT is announced that Mr. Joseph Chamberlain will preside at a banquet to be held at the Hotel Cecil on May 10th in support of the London School of Tropical Medicine. The Duke of Marlborough is chairman of the dinner committee and Sir Nevile Lubbock and Sir Henry K. Dawson, the chairman and vice-chairman of the West India Committee, will act as stewards. An important work is done by the schools of tropical medicine in training practitioners to recognise and to treat the special diseases of warm climates.

CURRENT THEORIES OF THE HEREDITARY PROCESS.

THE seventh lecture of the series[1] was delivered by Professor W. F. R. Weldon at University College, London, on Feb. 7th, the main topics discussed being the Mendelian doctrine of gametic purity, dominance, and reversal of dominance in the inheritance of characters. It is one thing, he said, to admit that the experimental results on the crossing of races of peas, referred to in the previous lecture, are as described, and another to assume that Mendel's hypothesis is the sole hypothesis which adequately formulates the facts. The doctrine of pure gametes cannot be reconciled with the vast body of facts and data of heredity in human families and races collected and published by Francis Galton and Karl Pearson. The more we know of the ancestry of man, of domestic animals such as dogs, and of cultivated plants the more accurate will be our prediction of what the progeny will be. Probably both views, the Galtonian and the Mendelian, will be reconciled in time in a wider generalisation of the facts of inheritance and descent—a larger theory of heredity. Yellow is the dominant factor in the first generation of hybrids obtained by the crossing of "pure" green and yellow seeded peas. This character of "dominance," said Professor Weldon, is comparable to that exhibited by each of a pair of separated blastomeres, which grows into a perfect but small larva in echinoderms and other animals mentioned in an earlier lecture. Whereas in two-celled union each blastomere gives rise to one-half (right and left sides) of the entire larval organism without dominance of one side or the other, the mechanical separation of the two blastomeres arouses the latent dominance in each and thus each is able to produce a complete larva. When hydra or a planarian worm is cut a quantitative restoration (regeneration) takes place of the missing parts, the power of reproduction becomes dominant locally about and at the site of lesion, and the lost organs or limbs are regenerated. Similarly cells changed by the removal of their normal connexions—e.g., the choroid cells of the frog's eye when the lens has been excised—regenerate and form a new lens. The power of regeneration in lower animals is so dominant that it can pass by inheritance from one generation to another for hundreds of generations. Reversal of dominance when it occurred does not always follow Mendel's formula. Thus Czermak of Vienna, who during the past few years has extensively investigated peas of various races, has obtained in his experiments results irreconcileable with Mendel's formula. Professor Weldon said that going over the same series of experiments he obtained results identical with those of Czermak. Thus when two well-marked races of peas were used—viz., (*a*) a smooth type of seed of nearly round or slightly oval contour and (*b*) a wrinkled type of seed of somewhat angular and irregular contour—the shape of the hybrid offspring of these varied according as to whether the pollen of (*a*) was employed to fertilise the flowers of (*b*) or *vice versâ*. The shape of the seeds varied in the hybrid progeny but not the colour. Again, whatever way the crossing was made these two separate types of hybrid issue (round and smooth or wrinkled and angular) each when self-fertilised reproduced "true." In other words, the segregation of allelomorphic characters (characters of colour which differed and were antagonistic) did not occur in the first generation of hybrid progeny on crossing and dominance showed itself—i.e., the occurrence of pure types—later. These facts, determined by both sets of observations, are contrary to Mendel's law. Czermak also crossed other peas of English and Austrian "races," both races being characterised, however, by yellow-coloured and rounded smooth seeds. The hybrids were round-seeded but the issue of these latter were uniformly wrinkled, a thing impossible, Professor Weldon remarked, on any Mendelian theory. They had in the foregoing instance a case of what Darwin called atavism, the reappearance of an ancestral character which long latent in both the races (English and Austrian) was roused into "dominance" by the shock of crossing and emerged into prominence, showing the "wrinkled" form. Many other experiments of Czermak confirmed the same conclusion as to atavism or reversion to the ancestral type. Such ancestry, says Professor Weldon, to which reversion takes place is not a very distant one. White mice marked with patches of purplish colour on the neck and rump when crossed with grey mice showed changes of colour and marking in the offspring which were exceedingly difficult to explain on any theory of gametic purity. When peas of a light or white-flowered "fancy" stock, the genealogical history of which showed descent from a long and distinctive purple ancestry, were crossed with another variety of similar colour the offspring reverted, sometimes very strongly, to the purple-coloured character of the ancestors. This ancestral dominance or reversion, concluded Professor Weldon, appears owing to the "shock" of crossing, and Czermak states that it is true that a very large number of ancestral characters are latent in every species and that any of them ma occasionally reappear.

[1] Abstracts of the first, second, third, fourth, fifth, and sixth lectures were published in THE LANCET of Jan. 7th (p. 42) and 21st (p. 181), Feb. 4th (p. 307) and 25th (p. 512), and March 4th (p. 534) and 11th (p. 657), 1905, respectively.

ARE COLLIERY WARNINGS OBSERVED?

COLLIERY warnings are usually issued when the atmospheric pressure reaches a high mark on the barometer—that is, when anticyclonic conditions prevail. These warnings are commonly published in the newspapers but we have never been able to trace their source. Presumably they are issued by the Meteorological Office authorities. Nor have we been able to find out whether these warnings are seriously regarded. Last week a terrible explosion occurred in a Welsh colliery in which over 30 lives were lost. The disaster happened on Friday evening, March 10th. Now if the meteorological readings (published regularly in THE LANCET) of last and this week be consulted it will be found that on March 8th the barometer stood at 30·08, on the 9th it fell to 29·5, on the 10th to 29·3, and on the 11th to 29·0. On the 10th the disaster took place. There was a fall, therefore, in the barometer of about

one inch from March 8th to 11th, which amounts to a reduction of pressure equal to about half a pound to the square inch. As is well known combustible gas, chiefly marsh gas, occurs occluded in coal which is ready to issue into the workings of a mine as soon as a fall of the barometric column takes place. Hence colliery warnings are issued when the pressure is abnormally high in order to prepare the miners against the consequences of a sudden fall. The same liberation of gas takes place in the coal bunkers of a ship when the atmospheric pressure relaxes or when the temperature increases. In order to prevent the accumulation of this gas the bunkers are thoroughly ventilated. In the case of mines, similarly, ventilation is employed, not only for the sake of the respiratory organs of the colliers but also for removing combustible gases. It is an interesting fact that the fall of the barometer last week exactly preceded the explosion in the Welsh colliery which, so far as can be gathered, was due to gas and not to dust. It would be interesting to know: (1) whether these colliery warnings are regularly issued and, if so, by whom; and (2) whether they are heeded and the condition of the mine is ascertained in accordance with the warning.

PLAGUE IN SYDNEY IN 1903.

THE report drawn up by Dr. J. Ashburton Thompson, chief medical officer of the Government of New South Wales, on the third outbreak of plague at Sydney—i.e., that of 1903—has just reached us. The final case of the preceding outbreak occurred on June 12th, 1902, and the last plague-infected rat was taken on July 14th of the same year. In the outbreak of 1903 the first plague-infected rat was captured on May 12th and the last on August 15th. Two cases also occurred in man, the date of attack of Case 1 being June 17th and that of Case 2 July 2nd. Both these patients recovered. The report now before us deals with three periods—namely, the plague-free period from July 15th, 1902, to April 30th, 1903; the plague period from May 1st, 1903, to August 15th, 1903[1]; and finally a portion of the ensuing plague-free period from August 16th to Dec. 31st, 1903. During the first period systematic rat catching was carried on by the official municipal rat catching staff and 31,075 rodents were taken, of which 17,160 were bacteriologically examined. Not one of these was affected with plague, so that on April 30th, 1903, it appeared that for eight and a half months Sydney had been free from plague in its rats as it undoubtedly was from plague in man. Special measures were also taken during this period by the municipal health authorities to insure the protection of warehouses, food stores, and produce stores by making them less accessible to rats by means of stopping runs, substituting concrete flooring for wooden flooring, and the like. During the second period the same measures were undertaken but in addition a capitation fee was offered for rodents. The total number delivered was 14,671, and of these, which were all examined, 111 rats and 50 mice were found to be plague-infected. Of the two cases of plague which occurred during this period in man the source of infection in Case 1 remained undiscovered. In Case 2 infection was presumably due to rats. During this period plague rats were also discovered on a ship which had come from Buenos Ayres. The general trend of the report shows that in this outbreak, as in the two former, the rat was the sole source of infection for man, but the relation of the rat to epidemic plague must still be generally considered as obscure. However, as Dr. Thompson points out, intelligent action as regards destruction of rats, their examination and identification of any illness from which they may suffer, together with careful cleansing of premises, are, as shown by the history of this outbreak, measures of the greatest use in limiting and in checking an epizootic.

[1] This period is taken from May 1st, although the first plague-infected rat was taken on May 12th, "for simplification of the analysis in view of the probability that the epizootic had begun some unascertainable number of days before the date of its discovery."

PRESENTATION TO DR. WILLIAM W. IRELAND.

ON March 4th, in the Royal College of Physicians of Edinburgh, Dr. William W. Ireland was presented with an illuminated address and a cheque on the occasion of the fiftieth anniversary of his medical graduation. Dr. John Playfair, the President of the College, occupied the chair and a considerable proportion of the company consisted of alienists, including the Scottish Commissioners in Lunacy and a number of asylum superintendents from various parts of the country. Dr. Ireland commenced his professional life in 1855 by graduating as M.D. at the University of Edinburgh and then entered the medical service of the Honourable East India Company. During the Mutiny of 1857 he received a wound which prevented him from undertaking active work during the next ten years. Eventually, however, he joined the Scottish National Institution for the Education of Imbecile Children situated at Larbert in Stirlingshire, where he made excellent use of his opportunities for studying the mental diseases of children and accomplished much literary work, both original productions and translations from the writings of continental authorities. Dr. T. S. Clouston, of the Royal Lunatic Asylum, Edinburgh, in making the presentation, said that Dr. Ireland had opened up a new path in biography by his application of medico-psychology and the effects of heredity in the elucidation of the lives of men historically eminent. Some of his publications, such as "The Blot upon the Brain" and "Through the Ivory Gate," were not only scientific but were also vivid and interesting to all intelligent readers, whilst his treatise on "The Mental Affections of Children" was the standard work on developmental defects of the mind. After Dr. Ireland had suitably acknowledged the presentation Dr. David Yellowlees, formerly superintendent of the Royal Lunatic Asylum, Glasgow, in proposing a vote of thanks to the presentation committee, of which Dr. John Thomson was the secretary, also paid a high tribute to the value of Dr. Ireland's work.

ACUTE ASCENDING PARALYSIS IN CASES OF CHRONIC CYSTITIS.

THE theories as to the etiology of many affections of the spinal cord were until comparatively recently very unsatisfactory but when it began to be recognised that some of these morbid conditions were the direct effect of such a definite chemical poison as lead it was difficult to avoid the very natural inference that other lesions of the spinal cord were the result of more obscure toxic agents. Thus some of these spinal paralyses appear to be produced by the toxins of the acute specific fevers and others are believed to be connected with the toxins of syphilis. Dr. T. J. Walker of Peterborough contributed a paper to THE LANCET of March 11th, p. 636, in which he recounted the essential particulars of three cases under his care. In each of the three there was a history of long-continued cystitis, not improbably accompanied by septic changes in the higher urinary tract; suddenly paralysis commenced in the lower limbs, rapidly spread upwards, and death occurred, in two cases 18 hours, and in one case 48 hours, after the onset of the paralysis. These acute ascending paralyses appear to be examples of Landry's paralysis but chronic cystitis has never been given as an etiological factor in that disease and all the text-books are silent on the matter. Hence the importance of Dr. Walker's observations. It is true that Stanley in 1833 described a paraplegia arising in a patient suffering from distension of the urinary bladder,

yet the case he reported is by no means on all fours with those which Dr. Walker has described, for at the time of death the paralysis had not gone above the waist. It is indubitable that in chronic septic processes of the urinary passages many toxins are formed and we can easily understand that the sudden absorption of some such toxin might produce an acute ascending paraplegia. Now that attention has been drawn to the association of these two conditions many cases will probably be noted and it may well be that such a causal nexus will be found to be far from rare. One of the most important factors in scientific progress is the recognition of hitherto unsuspected associations of phenomena.

A SALE OF WHISKY BILL.

WE understand that Sir Herbert Maxwell has presented a new Sale of Whisky Bill to the House of Commons. We believe the Bill seeks to obtain the same protection for purchasers of whisky as did the previous Bill, the clauses of which were dealt with about a year ago in a leading article in THE LANCET.[1] The Bill provides chiefly that a clear statement shall be made to purchasers as to the materials from which whisky has been made. It formerly applied to Great Britain but Ireland is now included and the measure will probably receive the support of the Irish Members.

THE SOUTH AFRICAN MEDICAL CONGRESS.

OUR readers may be again reminded that the South African Medical Congress will be held at Pietermaritzburg, Natal, from June 12th to 17th next inclusive, under the auspices of the Natal branch of the British Medical Association. Dr. James Hyslop, D.S.O., of Pietermaritzburg is the president and Dr. Samuel G. Campbell of Durban is the vice-president, while the honorary joint general secretaries are Dr. D. Campbell Watt, Pietermaritzburg, and Dr. W. Watkins-Pitchford, Pietermaritzburg. The names of the various sections and their secretaries were detailed in THE LANCET of August 27th, 1904, p. 625. The following dates have been assigned to the proceedings of the various sections—viz., Section (1), subjects of general interest, Monday, June 12th; (2) medical section, June 13th; (3) surgical section and (4) gynæcology and obstetrics, June 14th; (5) public health, June 15th; and (6) special subjects section, June 16th. On Saturday, June 17th, excursions will be made to the battle-fields, Ladysmith, to Durban and its harbour, and to the waterworks, Henley. On June 12th the Congress will be officially opened by His Excellency the Governor and in the afternoon of the following day there will be a demonstration at the Government Bacteriological Laboratory. On June 14th, in the evening, the Mayor will hold a reception and on the afternoon of June 15th there will be a garden party at Government House and in the evening the President will hold an "at home" at the Natal Government Asylum, of which he is the medical superintendent. On the afternoon of the following day a visit will be paid to Nel's Rust creamery and in the evening the Congress banquet will take place. A list of hotels is given the tariff of which ranges from 8*s.* 6*d.* to 12*s.* 6*d.* per day. The Natal Government has arranged that members of the Congress may travel by rail at reduced fares and the Union Castle Mail Steamship Company has consented to grant a reduction of 20 per cent. on the usual fares to *bonâ-fide* members of the Congress embarking at Cape Town, Algoa Bay, and East London. The Union Castle Steamship Company states in "The Guide to South Africa" that the distance in nautical miles from London to Durban is 6993 miles. Pietermaritzburg is about 70 miles north-west by west of Durban. The journey thither from London occupies from three to four weeks.

[1] THE LANCET, March 19th, 1904, p. 816.

SEÑOR MANUEL GARCIA'S CENTENARY.

As announced in THE LANCET of Jan. 28th, the celebration of Señor Manuel Garcia's centenary will take place to-day (Friday, March 17th). The programme has now been definitely arranged as follows. A meeting will be held at noon at 20, Hanover-square, at which congratulatory addresses and messages will be delivered in the following order: messages from the King of Spain and the German Emperor, address from the Royal Society of London, message from the Prussian Academy of Sciences, addresses from the Universities of Königsberg, Manchester, and Heidelberg, address from old pupils, addresses from the Royal Academy of Music and the Royal College of Music, and addresses and messages from the following laryngological societies: American Laryngological Association, Belgian Society of Oto-Rhino-Laryngology, Berlin Laryngological Society, British Laryngo-Oto-Rhinological Association, Danish Laryngological Society, French and Italian Laryngo-Rhino-Otological Societies, London Laryngological Society, Netherlands Laryngo-Oto-Rhinological Society, the Paris, Rhenish-Westphalian, St. Petersburg, and South German Laryngological Societies, Spanish Laryngo-Oto-Rhinological Society, and the Vienna, Warsaw, and West German Laryngological Societies. In conclusion, the centenarian's portrait, painted by Mr. John Sargent, R.A., and subscribed for by international contributions, will be handed to him. In the afternoon, at 3 P.M., there will be a special meeting of the London Laryngological Society at which the foreign visitors will have the opportunity of seeing a number of interesting cases and specimens. In the evening, at 7.30, a banquet will take place at the Hotel Cecil at which Señor Garcia is expected to be present. The toasts will be but three, namely—"The King," "Señor Garcia," and "The Foreign Visitors." It is hoped that Señor Garcia will reply to the toast of his health. After the dinner a selection of music will be given by a number of eminent artists who have kindly offered their services.

THE medical officer of health of the Cape Colony states that for the week ending Feb. 18th the condition of the colony as regards plague was as follows. No case of plague in man or other animal was discovered in any district of the colony during the week. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on March 10th states that for the week ending March 9th there were 3 cases of plague reported and 1 death occurred from the disease.

The Duchess of Albany has intimated her intention of attending the annual meeting of the governors of the National Hospital for the Paralysed and Epileptic, Queen-square, Bloomsbury, W.C., to be held at the hospital on March 21st, at 3 P.M.

AT a meeting of the Hunterian Society to be held at the London Institution, Finsbury-circus, E.C., on March 22nd, a discussion upon Influenza will be opened by Professor T. C. Allbutt, F.R.S. The discussion, which is open to all members of the medical profession, will be continued on April 26th, and amongst those who have promised to take a part in it are Dr. H. Franklin Parsons, Dr. F. J. Smith, Dr. I. Burney Yeo, and Dr. T. Glover Lyon.

THE Education Committee of the London County Council submitted an important report to the Council at the meeting on Tuesday last in respect of the medical supervision of the Council's board schools. The report which provided for more complete medical inspection involved an increased

expenditure of over £2000 per annum and consideration of it was postponed.

THE King has sanctioned the following promotion in the Order of the Hospital of St. John of Jerusalem in England—viz., Joseph Dallas Pratt, M.D. Dub., F.R.C.S. Irel. (from Honorary Associate), to be Knight of Grace.

Mr. G. H. Makins, C.B., F.R.C.S. Eng., and Mr. Charters J. Symonds, M.S. Lond., F.R.C.S. Eng., have joined the consulting staff of the Bolingbroke Hospital, Wandsworth Common, S.W.

MEDICINE AND THE LAW.

The Storage of Flour.

THE Paddington borough council appeared in answer to a summons at the Marylebone police court on March 3rd, the complainant being a baker whose underground bakehouse the council had refused to license because he would not use a kitchen exclusively as a store for his flour. Mr. Plowden acceded to the complainant's application and granted him a licence on the ground that the lighting, ventilation, and construction of the bakehouse only were the concern of the public authority in the matter. It might have been expected that if the learned magistrate felt himself constrained to take this view of the law he would have done so with some regret but Mr. Plowden, on the contrary, regarded the conduct of the council as an act of officious interference with the baker's liberty of action. "What could it matter to the council," he asked, "where a poor baker kept his flour?" To this the medical officer of health replied by pointing out that flour not kept in a proper place will go sour. He might have added that it mattered nothing at all to the council but that it made a great deal of difference to the poor people whose circumstances compelled them to buy and to eat the bread. In giving his decision Mr. Plowden is reported as having said further: "You cannot determine where he shall put his flour any more than you can determine where I put my drawing-room furniture. I call it most meddlesome and officious interference and it seems to me it is pressing the whole purport of the section of the Act extravagantly. Where he keeps his flour matters nothing." The 101st section of the Factory and Workshops Act, 1901, provides that "an underground bakehouse shall not be certified as suitable unless the district council is satisfied that it is suitable as regards construction, light, ventilation, and in all other respects." Upon what section of an Act of Parliament or upon what other authority Mr. Plowden relied when he gave the remarkable and unfortunate decision quoted above does not appear in the reports published in the daily newspapers. It is not easy to believe that the legislature intended to confine the regulation of the bakehouse to the ventilation and construction of the actual baking room (a term specifically used where the baking room only is meant), and that it viewed with indifference the fact that the baking room might be suitable while the flour might be kept in a place swarming with vermin or serving the purposes of a latrine.

Antivaccinationists in the Educated Classes.

At Bow-street Sir Walter John Grove was summoned recently and fined 20*s.* with 23*s.* costs for refusing to comply with an order previously obtained that he should have his child vaccinated. The solicitor for the prosecution mentioned that he had received a letter from the defendant, who was not present, in which he said that personally he had no objection to having his child vaccinated and, indeed, wished it to be done, but that Lady Grove, being an anti-vaccinationist, absolutely declined. Sir Walter Grove was accordingly fined, as being the parent legally if not morally responsible in the matter. It is to be hoped that the children of Lady Grove will not at some future period learn to regret bitterly the attitude of their mother in needlessly exposing them to the ravages of a dangerous and disfiguring disease or the want of authority of their father in his own household.

The Coroner, the Medical Man, and the Pathologist.

A typical instance of the attitude adopted by the coroner in the South-Western district of London towards the medical men practising within his jurisdiction is to be found in a case which occurred recently. A local medical practitioner was hurriedly summoned to attend "a woman in a fit.' He found a stout woman lying on the floor on her back with a cushion under her head. He thought that he could detect slight movements of the chest wall but he could feel no pulse and could not with the aid of the stethoscope discover either heart beat or respiration. Her conjunctivæ had become insensible to touch. He at once took the trouble to notify the police and to suggest that the coroner should be informed, giving his name and address. Nevertheless, strange as it may seem, he received no summons to attend the inquest as a witness and when he voluntarily attended and offered to give evidence was told by the deputy-coroner that his "worthy chief," Mr. Troutbeck, had settled the matter. The post-mortem examination was made by Dr. L. Freyberger. Presumably Mr. Troutbeck will continue to follow the policy which he has adopted until the step recommended frequently in THE LANCET is taken and objection is made to the auditor of the County Council's accounts in respect of fees paid for medical evidence at inquests which are not sanctioned by the Coroners Act.

Limited Liability Companies and Medical or Dental Practice.

An excellent method has apparently been discovered by the Irish branch of the British Dental Association for dealing with the offence of dental practice by unqualified persons under the cloak of a limited company with a title implying qualification to practise dentistry. The difficulty of convicting criminally in such cases lies in this, that a company cannot be registered as a dentist, so that it cannot logically and legally be said to commit the offence of pretending so to be registered. Further, the individual performing the operation is not the company so that he often persuades the easily misled local magistrate that it is not he who has used titles implying registration and the non liability of the company is used by the advocate to befog the issues generally. The Irish branch of the British Dental Association has accordingly tried a new plan and, invoking the aid of the Attorney-General, has asked for, and obtained, an injunction against one of these bogus companies in the Chancery Division at Dublin. The defendants selected practised under the audacious title, "Mr. Appleton, Surgeon Dentist, Limited." The ground of the application was that the whole matter constituted a dangerous fraud upon the public and upon the dental branch of the medical profession. The whole of the facts connected with the registration of such companies in general and with that of the company before the court were gone into at length, and in the latter connexion it was shown that neither a man named Appleton or his wife, the two "directors" of the company, nor any of the signatories were on the Dental Register. The Master of the Rolls in giving judgment declared that the statements of Mr. Samuels, K.C., in applying for the injunction had been in no way too strongly worded; he had spoken of an audacious fraud and the facts constituted an audacious fraud. It was a matter affecting the whole public and it was no answer to an application for an injunction to say that the offence was an indictable misdemeanour. The Attorney-General was entitled to apply to stop the misdemeanour and he was entitled to succeed. It is hardly necessary to point out that the course thus adopted may mark an epoch in the efforts of the medical and the dental professions to deal with quackery and that the invoking of the aid of the Court of Chancery, if somewhat cumbersome and costly, may prove a more efficient method than the police-court summons in other cases besides those where the bogus limited company is used as a stalking horse for the unwary public.

The Midwives Act.

The actual meaning of that part of the Midwives Act which will come into force after March 31st, 1905, should not escape attention. After that day no woman will be allowed to call herself a midwife or to use any other name to make people believe she is specially qualified to practise as a midwife unless her name is on the midwives roll kept by the Central Midwives Board. Under the Act any woman who has been for one year in *bonâ fide* practice as a midwife before the date on which the Act was passed (that is to say, before July, 1902) and who can give satisfactory references to character, may, before March 31st, 1905, claim to have her name put on the roll.

MEDICINE, ITS PRACTICE AND ITS PUBLIC RELATIONS.

CHAPTER IV.[1]

THE GRIEVANCES OF THE MEDICAL PROFESSION.

The Diversity of the Grievances.—The Consulting Physician and Surgeon.—The Growth of Specialism.—The Grievances of the General Practitioner.—Medical Aid Associations.

WHEN we survey the present state of the medical profession in detail, so as to seek out the advantages enjoyed by some classes and the grievances endured by others, we are at once struck with the varied opportunities that the profession holds out to men of different bents of mind. The consulting physician, the operating surgeon, the general practitioner, the holder of purely scientific appointments, the holder of sanitary and municipal appointments, the medical officer in the navy, in the army, in the Indian army, and in the colonial service—the careers of all these differ entirely. For some life will be essentially adventurous; for others it will be spent in two or three wards, an operating theatre, and a consulting room. Some will be the trusted friends of the great and the wise, so that the most exclusive doors will be open to them; others will serve under authorities and municipalities composed of men whose education and position are not equal to their own; and some must live the life of the poor with the poor. The sportsman can indulge his proclivities in moderation while discharging his professional duties with zeal, and small will be his chances of success if he interchanges the zeal and the moderation. The man who loves the study of his fellows has social and psychological problems unrolled before him from hour to hour—he sees naked souls as well as naked bodies and has to take the treatment of both into his consideration; while he whose sympathies are rather with the theory than with the practice of his art can exert his energies in the class room or laboratory without coming into collision with the public. All sorts of persons in all sorts of methods and under all sorts of skies can carry on the profession of medicine, so that there need not be many to whom the medical life is irksome. There will be an unfortunate few, who, being by nature designed for work of one kind, have by stress of circumstances been forced into a different groove. Probably they did not discover their own tastes until it was too late to work in the necessary direction and this error is a very difficult one to rectify, whatever calling in life a man may adopt. But, speaking generally, the profession of medicine has this first advantage for its British disciples; it offers a career that can be varied to suit all tastes. A high percentage of the followers of medicine attain to a fair degree of success and the total failures are comparatively infrequent, and no man need follow a thoroughly uncongenial employment as a medical man because of the great diversity of careers that is open to him.

These three things must always be remembered, for while many circumstances may be held to detract from the medical life, these three things, whatever those circumstances, establish it as a good life offering chances to a man with brains and energies to take advantage of them—chances of choosing a proper sphere of labour and of remaining to some extent master of his own career, while obeying the conventions and the restrictions entailed by modern civilisation. And to these must be added as the supreme pleasure of the practice of medicine, counteracting numberless disadvantages and annulling the greatest trials, the sense of being a member of a high and noble calling. Though many causes are at work, as we know too well, such as the prevalence of quackery, the abuse of hospitals, the commercial societies sweating the medical man, which all tend to make the medical life a hard one, this sense abides with us and supports us. And though busy days are followed by busy nights, there are rewards of infinite sweetness. What though the medical man occasionally meets with meanness, rudeness, and ingratitude. These things are not the rule and to no other body of men is it given so often to deserve the heartfelt thanks of their fellows, to be brothers to the weak and helpers to the fallen. The feeling that merely to do the duty of the day is to discharge functions of the greatest gravity and to cope with situations of the most delicate responsibility is ennobling. No other pursuit can equal ours in variety and interest and when followed conscientiously none will bring to the mind so unalloyed a sense of pleasure.

But none the less the grievances of the medical profession are very real, as are the various circumstances which militate against the progress of medicine and which by depressing the scientific, material, and social status of the practitioner make him a less useful instrument for the safeguarding of the public. That these grievances are of many kinds is assured by the fact that there are many kinds of medical practice. And if some of them seem common to all sections of medical practice while others seem peculiar to one section or another, it must be remembered that the subdivisions upon which a little insistence has just been placed are subdivisions of practice only; the broad aims of every member of the medical profession are the same, his ideals are the same, and his responsibilities to the public are the same; and whatever interferes with the due development of the utility of one branch of the profession affects the whole professional body.

THE POSITION OF THE MODERN CONSULTANT.

The consulting physician and the consulting surgeon represent the fine flower of success in the medical profession. They are the class in Sir James Paget's classification for whom the designation of "very distinguished success" is reserved, so that not much time need be occupied in detailing their chances of ill-success. These are largely comparative and are expressed by saying that times have altered much of late and that here competition has become severer. When the class from which hospital physicians are drawn was a very small one, and when the "pure" surgeon was followed in his appointment and practice by favoured pupils, the lack of rivalry among the consulting class was conspicuous. It was insured by an early line of demarcation being drawn between those who might and those who might not hope to attain to leadership in the profession, and we do not suppose that there exists anyone sufficiently illiberal to regret the ancient order. But with the multiplication of universities, the growth of provincial medical schools, and the complete abolition of direct and indirect traffic in hospital appointments there has come a marked increase in the number of candidates for the highest professional honours. Round every general hospital to which a medical school is attached a band of young men await the opening for which they have fully equipped themselves. But to obtain their hope does not necessarily mean success. For those who gain staff appointments or hospital appointments soon find that the struggle upon which they have embarked is a severe one and that the trials of competition are not over because they have succeeded in getting on the bottom rung of the ladder that leads up to distinguished success. There are so many others in the same position and the number continues to grow as the number of hospital appointments, whether at general or special hospitals, grows. The young general consulting physician, in England, Scotland, or Ireland alike, finds it very hard, as a rule, to earn enough money to live

[1] Chapters I., II., and III. were published in THE LANCET of Feb. 18th (p. 447), Feb. 25th (p. 517), and March 4th (p. 593), 1905, respectively.

until the public are aware of his existence, while the teaching appointments upon which he would have relied in days gone by are at many of the best centres of medical education no longer lucrative. If the plight of the young consulting surgeon is better, because in the matter of operations the public is not so loth to trust a young man as where medicine is concerned, still he also feels the strain of competition and the loss of emolument for his educational labours. When the science of medicine was much simpler, and when the education of the medical student was a much less costly thing, the fees paid to a medical school were in excess of the cost to the school of supplying the student with the necessary facilities for education. The surplus was divided among such of the medical staff of the hospital as held teaching appointments. And although it is now some time since lectureships at the medical schools have been worth substantial sums, it is only in comparatively recent years that the position has been established that a large part of the education of the medical student has to be carried on by gratuitous effort. This plight has, of course, been reached mainly on account of the great increase in the expense to the medical schools that results from the developments of physiology and bacteriology. Expensive practical courses have to be arranged, expensive laboratories have been built, and the result is that medical schools, which in many instances draw on the funds of their hospitals, cannot pay any of their lecturers adequately, and often do not attempt to pay them at all.

The loss of valuable income obtained by tuition during the critical early time of professional life falls now upon the consultant when he has to bear the strain of a new and increasing class of competition—the competition of the special hospitals. The growth of special hospitals has created a large increase in consultants of the specialist type, and the public believe implicitly that the medical man ought to be a specialist. There is some reason in the view, just as there are powerful arguments against it. The developments of medicine and surgery, and the opportunities for interchange of knowledge afforded by the multiplication of medical societies and medical journals, have made it impossible for any medical man to keep level with the ramifications of our science in special directions, and as a consequence it is now quite usual for a consultant to make choice of a line along which he proposes to work. If he is at a general hospital he becomes associated in the minds of his colleagues and of his pupils with cases of a certain sort, the wards of his hospital give him scope for clinical research, and its records enable him to interpret the lessons of the past by the knowledge of the present. If he is at a special hospital, though he has not the same opportunity of keeping in his memory the general rules by which special problems must often be solved, still he has probably more valuable material, material which more immediately and more frequently illustrates the recurring difficulties of treatment. All this implies that along any groove of medicine competition among the consulting authorities is more than doubled, while this does not tell the complete tale. There are special hospitals which foster hospital abuse by having no adequate regulations to prevent the well-to-do public from obtaining advice at their out-patient departments in return for small sums of money. These institutions undoubtedly deprive the consulting physicians and surgeons of much professional work for which they should receive remuneration and it is regrettable to think that in many cases the evil has arisen through the direct action of medical men. Hospital abuse is a subject to which further reference is about to be made but it is well to point out here that it weighs sometimes as heavily against the consultant as against the general practitioner, for this aspect of the matter is frequently missed.

Through competition, fair and unfair, and through the spendthrift policy entailed upon the medical schools by the educational conditions of to-day the consulting physician and the consulting surgeon at the beginning of their careers have often a severe struggle. Yet when we have said this the fact remains that they form the really successful members of our profession. And so far from succeeding to that position by the favour of extrinsic circumstances, as would have been their lucky lot in days not long gone by, every step has to be won by competition. Every post is wrested from men apparently of equal merit and hard on the heels of every holder of a post treads another ready to take his place. And the posts so striven for are practically unpaid ones, while the public save in exceptional circumstances are apt to be many years before they are prepared to remedy the pecuniary deficiency. Success is only won by incessant hard work, self-denial, and courage, for the number of cases of genuine and abiding success that follow upon irregular methods, such as self-advertisement, is, we are proud to know, small.

THE POSITION OF THE GENERAL PRACTITIONER.

The grievances of the general practitioner are much more numerous than those of the consulting physician or surgeon. So much prominence has been given to them in the pages of the medical journals that in the opinion of some people—those people who are not themselves sufferers—they have been made to wear an unduly important face. As a matter of fact, the measure of the hardships which surround and impede the life of the general practitioner has never been realised properly either by the public or by the medical profession as a whole. This want of appreciation by the public of the troubles affecting those who live more than any other section of the community by the alleviation of the troubles of others has been brought about in an obvious manner. Medical men have rarely made a common cause against abuses which threaten or assail them and those who have done so have acted generally in a half-hearted manner, feeling that they are without the material or moral support of their natural leaders, the great figureheads of medicine, and sore at being termed trade unionists. The public are not conspicuously in agreement with the aims of medicine and have not the trust in their medical advisers that they had a generation ago. The public are educated to the point of distrust in what they cannot understand, but no further; and a certain section of the press, having a mental endowment not much superior to its *clientèle*, makes a business of fostering the inevitable misunderstandings. It is not to be regretted that the public have lost blind faith, but it is unfortunate that they have not acquired, with their wider mental horizon, a more reasonable grounding in scientific facts. The general practitioner has to meet his adverse circumstances with a proportion of the public ready to regard him distrustfully, with no effective methods of combination, and without influential leadership. The grievances under which he suffers to which special allusion is now to be made—namely, the evil of contract practice and the prevalence of hospital abuse—are of a material kind. Primarily, that is to say, they affect the purse of the medical man and his status in society. They are the things that directly or indirectly cause him to be underpaid; and from them the situation arises that either he puts up with imposition, which gives him a constant sense of soreness and never wins him the least appreciation from the public, or he resists it, in which case he is made to appear a grasping and extortionate person. Also he soon discovers that in the majority of cases he is quite unable, through lack of combination with his fellows, to gain anything substantial by resistance.

Medical Aid Associations.

It is constantly assumed by medical men, when stung into writing or speaking of their social or professional grievances, that the medical professional is overcrowded but the figures which have been given in the previous chapter do not bear

out this view. The overcrowding is only partial and arises from the facts that too many medical men want to do the same thing and that too few are trained in the proper way to do anything different. So that in certain places competition becomes over-acute with an inevitable cheapening of medical service. Undoubtedly there are too many young medical men in England who desire to start in independent practice, preferably in a town, immediately they have placed their names on the Medical Register. They are not willing to act as assistants; the various services have no great attraction for them; they are without capital. In this section of the medical profession there is overcrowding and the public have taken advantage of the fact. For of late years a movement among laymen has introduced into medical practice a new and disagreeable feature. The public, through so-called medical aid associations, have attempted by means of strong organisations to capture and to exploit medical service. It is about 10 or 12 years since certain members of the medical profession, mostly in possession of middle-class practices in large towns, began to be aware of the danger that was threatening them, through such bodies as the Manchester Unity of Oddfellows, the Foresters, the Druids, the Temperance Society of the Rechabites, the Industrial Assurance Company, Limited, the National Medical Aid Society, and many local associations. Complaints were made now from this town and now from that and a few persons well versed in medical politics knew that serious general trouble was arising. Local medical societies and branch meetings of the British Medical Association were addressed by aggrieved members and a few out-spoken letters made their appearance in the press. But for the most part the injured persons contented themselves with grumbling; but little attempt was made to diagnose the exact condition and to treat the cause, and no leader arose to formulate any policy of defence or reprisal. The medical profession as a whole hardly realised the extent to which they were being exploited until "The Battle of the Clubs" (as the struggle has been called) was started at Cork. The issues at Cork were exceedingly simple. The medical men of the city found that their private practices were falling off and those of them who were medical officers to clubs had no difficulty in appreciating the reason. An undue proportion of the substantial citizens, large tradesmen, employers of labour, and salaried clerks were joining the medical clubs and were demanding to be treated on the same terms as artisans and labourers, and even sought that a small yearly fee should cover attendance upon every member of the subscriber's family. The medical officers to the clubs protested. They required that persons in a proper position to pay fees for medical service should pay them and should not accept unwilling charity at the hands of medical men often in poorer circumstances than themselves. The clubs paid no attention to the protests and the medical men resigned their appointments and formed themselves into an association. They refused to work again for the clubs save at enhanced rates and with proper opportunities of deciding who were and who were not fitting objects for medical charity. The clubs imported persons whom the Cork medical men refused to meet as professional brethren. Upon this position being reached THE LANCET instituted an inquiry into the position of the medical profession in regard to the societies which in an increasing number of districts are now providing medical aid for the sick poor. Many complaints of divers sorts had been uttered but the struggle at Cork presented definite issues upon which the battle might be fought elsewhere. At Cork the medical men won the day, the imported practitioners making little headway in the city and the patients in large quantities deserting the clubs, which showed that effective resistance could be made. THE LANCET despatched a special commissioner to various medical centres in the kingdom who made reports of great interest and convincing frankness.[2] He showed in how many ways the evils of contract practice had grown up. Medical men, who already knew from personal experience something of the matter, were reinforced in their sense of the reality of their grievances by finding them shared with so many of their professional brethren, while medical men into whose ken such matters had never entered became acquainted with the troubles of a large section of their colleagues and so were prepared with valuable sympathy.

The articles showed the organisations to vary greatly in their scope and design. Some of the societies have as their primary objects schemes for life assurance and only add to these their project for medical aid as an inducement to the public to enter their fold. They form an example of the way in which a bad influence may spread, for certain life assurance offices, not over careful in their methods, having commenced touting for custom among the poor in this fashion, other and better offices have declared themselves compelled to follow suit. Some of the schemes to secure for the public medical attendance at low rates—a very worthy programme if it can be carried through without the oppression of other people—are devised, as far as the medical officer is concerned, with cynical callousness. The medical officer's salary is small, his work immense, and the conditions under which it has to be done preclude him from exercising his calling scientifically. Some of the associations are well managed in that an effective attempt is made to insure that only the truly necessitous shall be the recipients of medical charity. Some are uncommonly ill-managed in that all persons, no matter what their condition of health or their means, are invited to enrol themselves that they may be treated medically for 1*d.* a week, drugs included. In certain of these institutions the management of the association having been, and remaining, entirely in lay hands the interests of the medical officers suffer particularly severely. The patients who might reasonably have been expected to pay them as private clients are not ashamed to join the charitable associations—charitable to all save the medical men—and often want to have their wives, children, immediate relations, and occasionally the stranger within their gates treated in return for one payment. Many a medical man has found his private practice drifting into the hands of these bodies. The associations take his humbler patients and place this issue before him—will he attend *their* members in *their* way at *their* time under *their* rules for *their* fees, or will he have a salaried rival brought in against him? Some medical men have surrendered, others, particularly where there was a chance of combination against oppression, have held out. Where the middle-class patients, pauperising themselves, listen to the blandishments of the agents of the association and join the clubs in spite of their ability to pay their medical men proper fees, the contest has gone at first against the medical men. On the other hand, where the medical men by presenting an organised resistance have been able to keep the sympathy of the public on their side, the imported medical men have failed to fulfil their tasks and the clubs have suffered badly.

The ethical side of the situation must not be lost sight of. The manifest impropriety of medical men taking service under lay masters has led to an important development. It was, and is, the habit of certain medical aid associations to employ canvassers who by vaunting the talent of their salaried medical officers press the claims of their institution on the patients of other medical men. When this became known it was immediately seen that such a proceeding constituted a professional offence, inasmuch as a medical

[2] The Battle of the Clubs, by the Special Commissioner of THE LANCET. London: Offices of THE LANCET, 423, Strand. 1s.

man was doing, or permitting to be done for him through the agency of another, a thing which could be construed as advertisement, and advertisement is an "infamous" act in a professional sense. The General Medical Council took this view when it decided that the use of agents and canvassing to secure patients must be condemned. This support from the disciplinary tribunal of the profession put heart into the resistance to the exploiting tactics of the medical aid associations, with the result that many local organisations of medical men now exist for the purpose of taking combined action in support of claims for fair remuneration. There is no need to say more upon a subject which has been so much discussed, but it is well to point out that the General Medical Council remains unchanged in opinion as to the undesirability—to use no stronger word—of medical men serving lay associations upon unprofessional conditions.

(To be continued.)

ALCOHOL AND COMMERCIAL EFFICIENCY.

AT a conference of business men held at the Mansion House on March 8th, the LORD MAYOR presiding, Sir VICTOR HORSLEY made the following remarks:—

"When Mr. Ray first told me of the proposed title of this gathering this afternoon I was at some loss, from the scientific point of view, as to how to present the case before you. We have no experiments in our records of so many commercial men who are abstainers on the one hand and so many who are non-abstainers on the other to show what is the efficiency of those two classes of men respectively. But, my Lord, I take it that what we mean by commercial efficiency is economical expenditure to obtain a profitable return. Now, from the scientific standpoint it is very possible for me to make such a statement to you as shall be applicable to the everyday life of a commercial man. Alcohol is peculiar; there is something extraordinarily special about it because it is not essential to life. And there is no other substance, there is no other thing that we have to do with in this world upon which there is such an enormous national expenditure which is not an essential to life. Now the medical profession hold that it is one of the greatest evils to the nation, this non-essential. I suggest to you that socially and commercially it is a far greater evil than anything that the medical profession have considered it to be. It is useless to recapitulate statements by eminent men to a meeting of this kind. But I must again quote the late Chancellor of the Exchequer in the House of Commons when, speaking with unusual frankness as a Minister, he said that alcohol was the commonest cause of poverty and crime. If here we have a substance which is non-essential to life, is the commonest cause of poverty and of crime and one of the commonest causes of disease and of vice, then surely the time has come for this great city to review the situation from a commercial or economic standpoint. It is an ordinary idea that it is only the inefficient, the social failures, who find their way into the workhouse and the gaol. It is not only the persons who fail at the outset who drift that way. But I would like to say that the reason why people pass to the workhouse and the gaol is because of a common everyday belief that this non-essential to life is a beneficial substance, the common everyday belief that to the well-balanced mind there is no harm but that there is actually some profit in taking alcohol. If we speak to the ordinary man in the street he tells us at once, 'I do not drink, I take a little at my meals.' But in his answer, I submit to you that he is not considering the question of the nation at large, he is simply considering whether this substance does him any harm. And again, I submit to you that from an economic standpoint we have no moral right to support the continued use of something which, on the average and on the whole, is a source of loss and not profit to the nation at large. Of the annual expenditure, the direct outlay—that for which we are given to understand by popular belief there is some return—the annual expenditure of from £160,000,000 to £180,000,000 I have very little to say, it is all thrown clean away. But I want to impress upon you that that is only one part of the bill. Take Mr. Ritchie's statement in the House. We have to add to that the cost of most of the crime, the cost of most of the poverty, most of the premature death of bread-winners, and we have to add, from the medical point of view, that great tax which the nation is always paying but which it never realises, which Sir James Paget drew attention to many years ago at the first Health Exhibition in this city, the cost to the nation of preventable disease. And that cost, which means commercial inefficiency, is very largely due to alcohol. I wish now to show to this meeting, from the medical point of view, that for all this great cost, all this great expenditure, there is no profitable return. I am not speaking, of course, of those occasions on which a man, owing to a degraded custom, takes drink when he does business—everyone condemns that; but I want to speak to you of the occasions on which, as I have said just now, a man says, 'I take a little with my meals.' I want to point out to you that from the so-called dietetic use of alcohol there is no profit. If we take alcohol into the stomach, a small quantity—and I shall speak to-day of small quantities of alcohol, this quantity—20 grammes of absolute alcohol—and I shall have presently to refer to scientific experiments the whole bearing of which depends upon this amount of alcohol that we are going to speak about—what does it do for digestion? We often hear it said, 'Oh, it improves my digestion.' What does it do? In the first place, it is only a short time in the stomach. In the second place, its immediate effect is a stimulant and irritative effect upon the mucous membrane of the stomach, and therefore it causes a little more secretion of gastric juice even during the short time it is in the stomach. But it has another effect, which is the ordinary effect of alcohol upon all fermentative processes, that is to say, it retards digestion. If you balance these two things together where is the profit? There is no profit as the net result of the effect of alcohol in the stomach. After the alcohol has left the stomach it is passed into the blood and carried to the nervous system and it is carried all over the body. While it is circulating in the body is there any profit from its action on all our tissues? It has been suggested, and again and again repeated, that alcohol is a food. What is meant by that? That when the alcohol is circulating all over the body it is oxidised in the body, it is utilised in the body, or some of it, a small portion of it, some people say more, others less. But take it that a small part is oxidised in the body. If it is oxidised in the body it should contribute to the temperature of the body—it should warm it. But all the temperature observations in connexion with alcohol show that the temperature of the body in the net result is lowered, so that even if this oxidation does occur in the body there is no profit from the point of view of temperature. And I may say in passing that the reason why the temperature of the body is lowered and not raised is that what might have been a beneficial effect is negatived by the selective action which alcohol has upon the nervous system. All drugs have a selective action on different organs of the body—that is to say, they pick out the tissue they can attack. Alcohol picks out the nervous system. And when it gets to the nervous system we recognise at once scientifically that alcohol, like chloroform and like ether and like all substances of that kind, has apparently a two-fold action. In reality it has a paralysing action throughout. But the first action that it appears to have is what we call in the case of chloroform the stage of excitation. It is a good word, because it does not convey an idea that the excitation is any good to the individual, therefore why not use it for alcohol? We will call it the excitation stage. Now, during this excitation stage people say 'I feel better, I can talk more.' Whether they talk better is another question, but they say, 'I am more sociable,' and so on. Well, now, let us put aside ordinary impressions of that sort and let us submit the question to the rigid test of experiment. When you come down to actual experiment you find that the sense of well-being which the person experiences is in itself a delusion, that so far from thinking quickly he is really thinking more slowly, so far from calculating better he is calculating worse, and so on, at the very time when he has this sense of elation and exaltation. And what is true of the effect of alcohol on the thinking part of the brain is equally true of that part of the brain which governs the finer movements of our hands and other fine movements. And when a person thinks he is executing a movement more accurately and with less tremor

and shakiness exactly the opposite is the case. Therefore, gentlemen, in the stage of excitation or the stage of so-called stimulation I submit there is no profit. But we have not done with this effect upon the nervous system. We have to consider the second stage. And in the second stage any benefit that might have been imagined to result from the first stage is completely swamped by the after-effect which alcohol produces, even when taken in this small quantity, on the nervous system. There is always a depressant after-effect. Sometimes it passes unnoticed; sometimes people sleep through it—very often. But by experiment you can show that after the first excitation stage has lasted perhaps 20 minutes or half an hour, the depressant after-stage comes on and lasts up to 12 or 14 or even 24 hours. It is quite curious, I think, among the customs of daily life to hear a man say in the morning that he does not feel quite well and that he supposes it must have been due to the fact that he dined out the previous night. He always says that as if he, being a reasonable person, expects you, a reasonable being, to accept it as a reasonable explanation or, as the Speaker of the House of Commons would say, as a satisfactory answer. But, gentlemen, where is the profit? To my mind that man receives no profit from the alcohol he took in dining out; to my mind he receives nothing but injury.

So much for general considerations. But it is due to this conference to say that these general statements which I have made have been based upon scientific experiments measuring first keenness of perception, the rapidity with which you can tell a cipher or set of ciphers out of a row of ciphers, accuracy and clearness of judgment, and the literal addition of figures and efficiency in calculating. All these are points which directly bear upon commercial efficiency and if the answer is that alcohol even in small quantities diminishes that efficiency, then I submit that I have established my case.

My Lord Mayor, it is usually expected of anyone making a statement on this subject from the medical standpoint that he shall point out the horrible evils of alcohol. It occurred to me that on this occasion it was more essential to approach the question from the economic point of view and I venture to hope that I have said enough, at any rate, to suggest that in our national life there is no profit but only loss in the use of alcohol."

Looking Back.

FROM

THE LANCET, *SATURDAY*, March 17, 1827.

It is frequently observed, that different individuals residing in the same dwelling, are attacked in succession by fever, having the same essential symptoms. Hence it has been inferred, that they communicated the disease one to another in the way of *contagion*, as the *small pox* would have done under similar circumstances. But then it is urged, that there might have been some common cause operating of a *local* nature, which might act sooner or later upon the different individuals, according to the greater or less disposition to be affected by it; hence that such an argument is not decisive on the subject. It is a well-known fact, that most of the medical officers of the *Fever Hospital* at Pancras, and almost every one of the attendants, have been attacked in turn by fever, sooner or later after their connexion with the Hospital; and many have fallen victims to the disease. This, it must be confessed, has much the appearance of *contagion*. In reply to this, however, it is observed, that the site of the Hospital is a very unhealthy one; and that the neighbourhood altogether, from its low and marshy situation, has always been prolific in fever of this description. But the disease is by no means so general in the vicinity of the Hospital, as such an opinion supposes: while the case of the *Small Pox Hospital*, which is immediately contiguous to the *Fever Hospital*, negatives such a supposition; for the inmates of the former show no such disposition to be attacked by ordinary *continued fever*.—Hence it does not seem reasonable to ascribe the disease in these cases to a *local* cause; in other words, to say that it is of *endemic* origin; and therefore the evidence still appears to be in favour of *contagion*.

Another explanation, and a more probable one, has been offered, namely, that the *secretions* and *exhalations* from the bodies of the sick, when accumulated by the neglect of necessary ablutions and ventilation, acquire a virulent property, so as to be capable of exciting fever in those coming within its range. And in confirmation of this, the example is quoted of fever of the most *malignant* description being generated by merely crowding together a number of persons, without sufficient attention being paid to cleanliness and ventilation, and that where none of the persons were at the time affected with fever. Thus is generated, as it is said, the *Gaol, Hospital, and Ship Fever*. The famous *Old Bailey* Fever is considered as a strong illustration of this, where the prisoners, brought into court for trial, infected a great number of persons of all ranks, but such only as happened to be placed in the direction of the current of air proceeding from the prisoners. The prisoners themselves were not labouring under fever at the time, nor was the disease then prevalent in the prison; but the prison being excessively crowded and ill-ventilated, noxious effluvia were generated, which, becoming attached to their clothes, were found capable of exciting fever in others exposed to them.

If this be the true origin of the *virus*, you may perceive a marked distinction between this and the case of *small pox*. In the latter case the *virus* is the result of a *vital* action, a *morbid secretion*, like *syphilis*, and all the rest of the *specific* diseases. But in the former, the *virus* is formed external to the body, and proceeds from some decomposition or degeneracy of the natural secretions or exhalations passing off or deposited on the surface, the result of a *chemical* rather than a *vital* process. So that there is no proper analogy between the two. This difference justifies the use of a different term to denote it; and, accordingly, diseases propagated in this way, that is by noxious effluvia arising from the decomposition of *animal* matters out of the body, have been called *infectious*, to distinguish them from the really *contagious* ones, where the *virus* is generated within the body itself, by a kind of morbid secretion. In this view of the matter, ordinary fever may be said to be *infectious*, but not *contagious* like *small pox*. If this be correct, it is easy to imagine that *infectious virus* may be carried to a distance, by adhering to the skin or garments of a person, as well as by other ways. In this manner, the disease would *seem* to be communicated like *small pox*, though there would be a real and essential difference between the two.

But it is evident, that *prevention* would be far easier in the one case than in the other. In the case of *ordinary* fever, the *virus*, being lodged only in the clothing or other matters about the person of the sick, might easily be destroyed by purification; and the patient so purified might be removed without danger to those he afterwards communicated with. But in the case of *small pox*, and other real *contagions*, the patient is constantly carrying within himself a source of disease, capable of infecting others.[1]

[1] Excerpt from a lecture by Dr. Clutterbuck on Contagion and Fevers.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Chelmsford Rural District.—Considerable attention was paid during 1904 to the conditions under which the working classes are housed in this district which comprises persons dependent upon agriculture and, therefore, unable to pay other than small rents. Of the 29 parishes of which the district is composed six contain houses with under four persons per house, nine houses with from 4 to 4·25 persons per house, ten houses with from 4·25 to 4·5, and four houses with over 4·5 persons per house. A survey of each of the parishes showed, as was to have been anticipated, that the conditions with respect to housing varied very materially. A considerable amount of overcrowding was discovered as also were numerous dilapidations resulting in dampness and other defects. Indeed, one result of the survey has been to show the need for more systematic inspection of the district. It appears that the sanitary inspector is a thoroughly satisfactory officer, but the council itself is accused of erring a little on the side of leniency. If, says Dr. J. C. Thresh, "they would insist upon more prompt

action the work of the inspector would be much facilitated." But the special report relative to housing furnishes several instances of the difficulty of enforcing the nuisance sections of the Public Health Act in certain poor rural districts. At times the houses are in bad repair, the thatching being defective, the windows dilapidated, and the floors damp and uneven. For this accommodation the tenants pay 2*s.* 6*d.* per week and there are no other better cottages to which they can go save by paying a rent perhaps double that which they now pay. Moreover, if the tenants complain the landlord may take an early opportunity of getting rid of them. Instances of this nature are familiar to every medical officer of health and the only remedy, and this, we fear, is in practice but a partial one, is to insist upon systematic inspection of the houses of the poor in order that the occupiers may be relieved of the onus of complaining themselves. But generally the result of the survey to which Dr. Thresh refers was to show the necessity for more cottages at a low rental and with three bedrooms. For instance, at one of the villages it was stated that several engaged couples were being prevented from marriage owing to the scarcity of cottage accommodation. Dr. Thresh recommends that the district council should endeavour to erect houses in certain of the parishes, although he thinks that it is quite improbable that the rents obtained will cover the annual instalments of capital and interest. He does not, however, regard it as equitable that the rent should entirely cover these payments as, were it to do so, the tenant would, he urges, "be paying for property which would ultimately become the property of the parish or of your council." Assuming, he continues, "that each cottage left a burden of £2 per annum to be paid from the rates 50 such cottages would only increase the rates by £100 per annum and for £1000 per annum we could provide no less than 500 cottages" and, he adds, that he would rather see this sum spent annually in providing cottages than in supporting an isolation hospital. A point which is not referred to in the report before us but which is obviously one of economic importance is, What would be the value of the cottages in question when, as is anticipated by Dr. Thresh, they would become the property of the council? The answer to this depends upon two things—the character of the cottages and the time allowed for the repayment of the money borrowed to defray the cost of erection. Dr. Thresh refers to one interesting outcome of a threat on the part of the district council to put in force the Housing of the Working Classes Act in Ingatestone and Fryerning, where formerly there was great difficulty in obtaining housing accommodation. After the inquiries which took place in the village land was sold for building purposes and many cottages were erected. This is a very instructive case and we should like to see the experiment tried in several places where no cottages can be procured and no land can be obtained for building purposes. There are numerous places of this description within a short distance of the metropolis. Turning to the subject of water-supply we are glad to learn that in the case of new houses erected in this district no water certificates are given under the Public Health (Water) Act unless the wells are properly constructed, and leaflets setting forth the proper means are sent to the builders. This is a measure which should do much good and it might with profit be generally adopted throughout the country. It is extremely rare to find properly constructed wells and for some reason or other few well-sinkers appear to have any idea of well construction beyond that necessary to procure water of some nature. Attention is also being paid in the Chelmsford rural district to the important subject of the water-supply of dairies and cowsheds and some of the samples analysed during 1904 were found to be very impure. It is, however, refreshing to read that one of the cowkeepers sold his cows when he learned that the water-supply was polluted. In our own view there is no more pressing need at the present day than the improvement of the conditions under which the milk supplied to the public is procured and stored. If the public could be shown some of these conditions they would themselves agitate for reform.

Maldon Rural District.—Six cottages are being erected in one of the villages in this district under the Housing of the Working Classes Act. Each house has three bedrooms and the cost per cottage is estimated at £240. But Dr. Thresh thinks that unless cottages can be built at a smaller cost than this the problem of housing the working classes is not likely to be solved. Certainly, the rent reckoned at 5, 4, or even 3½ per cent. on this outlay would be in excess of that which an ordinary agricultural labourer with a family—even a small one—could afford. Many of the existing cottages in this district have, it is stated, been built on damp sites without any damp-proof courses and few have any paved area behind—an instructive reminiscence of the days when no by-laws were enforced.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8513 births and 5145 deaths were registered during the week ending March 11th. The annual rate of mortality in these towns, which had been 17·3, 15·7, and 17·1 per 1000 in the three preceding weeks, further rose to 17·2 per 1000 last week. In London the death-rate was 17·2 per 1000, which was also the average rate in the 75 other large towns. The lowest death-rates in these towns were 7·5 in Wallasey, 8·1 in Birkenhead, 9·3 in Hornsey and in East Ham, 9·6 in Northampton, 10·5 in Leyton, and 11·3 in Rotherham; the highest rates were 23·2 in Portsmouth, 23·4 in Hanley and in Nottingham, 23·5 in Reading, 24·9 in Middlesbrough, 27·7 in Wigan, and 28·9 in Merthyr Tydfil. The 5145 deaths in these towns last week included 471 which were referred to the principal infectious diseases, against 410, 365, and 486 in the three preceding weeks; of these 471 deaths, 178 resulted from measles, 132 from whooping-cough, 58 from diphtheria, 44 from diarrhœa, 37 from scarlet fever, and 22 from "fever" (principally enteric), but none from small-pox. No death from any of these diseases was registered last week in Brighton, Aston Manor, Stockport, Bury, South Shields, Tynemouth, or Newport (Mon.); while they caused the highest death-rates in Hastings, Portsmouth, Southampton, Reading, Hanley, Nottingham, and West Hartlepool. The greatest proportional mortality from measles occurred in Portsmouth, Southampton, Reading, Nottingham, Wigan, Bolton, West Hartlepool, and Merthyr Tydfil; from scarlet fever in Handsworth (Staffs.); from diphtheria in Barrow-in-Furness; from whooping-cough in Willesden, Tottenham, Hastings, Hanley, Smethwick, and Rhondda; and from diarrhœa in Devonport and Hanley. The mortality from "fever" showed no marked excess in any of the 76 towns, and no death from small-pox was recorded during the week. The Metropolitan Asylums Hospitals contained 16 small-pox patients at the end of last week, against eight, 15, and 15 at the end of the three preceding weeks; three new cases were admitted during the week, against three, seven, and four in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital, which had been 2017, 1987, and 2002 at the end of the three preceding weeks, had further risen to 2036 at the end of last week; 303 new cases were admitted during the week, against 241, 224, and 290 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 378, 335, and 353 in the three preceding weeks, further increased to 361 last week, but were 53 below the number in the corresponding period of last year. The causes of 59, or 1·1 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Leicester, Salford, Leeds, and in 45 other smaller towns; the largest proportions of uncertified deaths were registered in Portsmouth, Birmingham, Liverpool, Warrington, Blackburn, Bradford, Sheffield, South Shields, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 18·9, 18·3, and 17·4 per 1000 in the three preceding weeks, rose again to 18·6 per 1000 during the week ending March 11th, and was 1·4 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 14·4 in Edinburgh and 17·8 in Glasgow to 23·8 in Greenock and 24·4 in Perth. The 625 deaths in these towns included 31 which were referred to whooping-cough, 17 to diarrhœa, six to measles, two to diphtheria, one to scarlet fever, and one to "fever." In all, 58 deaths resulted from these principal infectious diseases last week, against 52, 63, and

60 in the three preceding weeks. These 58 deaths were equal to an annual rate of 1·7 per 1000, which was slightly above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 27 in each of the two preceding weeks, increased last week to 31, of which 22 occurred in Glasgow, two in Edinburgh, two in Greenock, and two in Perth. The fatal cases of diarrhœa, which had been 13, 13, and 16 in the three preceding weeks, further rose to 17 last week, and included ten in Glasgow, three in Edinburgh, and two in Aberdeen. The deaths from measles, which had been seven and eight in the two preceding weeks, declined again last week to six, all of which were recorded in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 119, 116, and 114 in the three preceding weeks, rose again last week to 153, but were slightly below the number in the corresponding period of last year. The causes of 19, or more than 3 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 23·5, 25·5, and 30·7 per 1000 in the three preceding weeks, declined again to 25·2 per 1000 during the week ending March 11th. During the past four weeks the death-rate has averaged 26·2 per 1000, the rates during the same period being 16·8 in London and 15·4 in Edinburgh. The 183 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 40 from the number in the preceding week and included two which were referred to the principal infectious diseases, against eight, five, and eight in the three preceding weeks; of these, one resulted from measles and one from "fever." These two deaths were equal to an annual rate of 0·3 per 1000, the death-rates last week from the principal infectious diseases being 1·6 in London and 0·8 in Edinburgh. The 183 deaths in Dublin last week included 37 among children under one year of age and 55 among persons aged 60 years and upwards; the deaths both of infants and of elderly persons showed a marked decline from the respective numbers recorded in the preceding week. Three inquest cases and two deaths from violence were registered; and 65, or more than a third, of the deaths occurred in public institutions. The causes of 18, or more than 5 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Fleet-Surgeon William Robert Minchin Young has been placed on the Retired List at his own request (dated March 1st, 1905).

The following appointments are notified:—Surgeons: C. J. Boucher to the *Fire Queen*, for disposal; A. F. Fleming to the *Vivid*, for disposal; C. B. Fairbank to the *President*, for three months' hospital study; and J. Verdon to the *Vernon*.

ROYAL ARMY MEDICAL CORPS.

Major C. W. R. Healey and Major J. H. Daly are posted to Dublin and Queenstown respectively. Lieutenant-Colonel S. Westcott, C.M.G., is appointed Medical Inspector of Recruits to the Northern Command, at York, and Lieutenant-Colonel A. F. Russell, C.M.G., to the Eastern Command, at London. Surgeon-General W. Donovan, C.B., left England on March 4th for South Africa to take up his duties as Principal Medical Officer on the Staff of Lieutenant-General Sir Henry Hildyard at Pretoria. Lieutenant-Colonel H. O. Trevor is appointed Medical Inspector of Recruits in the Aldershot Army Corps. Colonel J. F. Routh, who has been serving on the strength of the Aldershot Command, has left England for India to take over administrative charge of a district on promotion. Colonel J. Magill, C.B., has left England for Egypt to take up the duties of Principal Medical Officer of the army of occupation, on appointment, in succession to Colonel W. A. May, C.B.

Lieutenant-Colonel G. F. A. Smythe retires on retired pay (dated March 11th, 1905). Major F. J. W. Porter, D.S.O., from the Seconded List, to be Major (dated March 1st, 1905). Lieutenant R. L. V. Foster is seconded for service with the Egyptian Army (dated Jan. 17th, 1905). Major R. H. Penton, D.S.O., from the Seconded List, to be Major (dated March 1st, 1905).

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major A. A. Watson to be Surgeon-Lieutenant-Colonel (dated Feb. 28th, 1905).

A RUSSIAN APPRECIATION OF JAPANESE MEDICINE.

At a sitting of the Vladivostock Medical Society on Jan. 20th last Dr. N. V. Kiriloff and Dr. Rontchevski spoke very highly of Japanese medicine and hygiene. The former rapidly traced the meteoric emancipation of Japan (where even in 1876 there were still 30,000 Chinese medical men) from Chinese medical tutelage up to 1901 when no trace of Chinese medicine, except in museums or in a few proprietary articles, could be found over the whole land. In addition to the two existing Japanese universities there are eight medical schools the students of which, though not equal in education to those from the universities, are in no way inferior to the average European medical man. "It must be recognised," he said, "that the sanitary aspect of medicine in Japan is not the best, although perhaps in respect to ordinary life nowhere do we meet with such cleanliness. Quarantine prevails in all Japanese ports." The *Vladivostok Listok* adds that Dr. Rontchevski confirmed the statements as to the efficiency of Japanese surgery and defective sanitation in the hospitals.

ARMY RECRUITING FOR 1904.

The annual report on army and militia recruiting has just been issued and in existing circumstances will no doubt be closely scrutinised. It shows that of the numbers submitted to medical inspection 34·39 per cent. were rejected for various ailments and want of physical development. The report for the year ended Sept. 30th last. During the 12 months the number of recruits who joined the regular army, excluding Colonial corps, amounted to 41,279, and for the militia 35,264. The number of men medically inspected amounted to 71,699. In addition 20,075 who offered themselves were rejected by the recruiters or recruiting officers on physical grounds. The regulation that all recruits shall produce characters before being accepted for the regular army or militia has had satisfactory results. The question of defective teeth among recruits is stated to be a matter which becomes of greater importance every year. While the recruiting for the Foot Guards, although showing a slight increase, has been unsatisfactory that for the infantry of the line has been satisfactory, but this is probably largely attributable to the fact that the other arms of the service, owing to their surplus, were closed to recruiting.

THE ARMY ESTIMATES.

An explanatory memorandum of the Secretary of State for War has just been issued with the army estimates for the coming financial year. It will be closely examined by those who do not altogether share Mr. Arnold-Forster's enthusiasm regarding his new scheme.

THE WAR IN THE FAR EAST.

There is no need to dwell here upon the recent events of this terrible war; all our readers have been fully informed of them by official statements from both belligerents. The pursuit of the routed Russians, which threatens to break up what was recently the vast army in Manchuria into disorganised and scattered fragments, has been relentlessly followed up by the Japanese and the sum-total of military disaster is now unparalleled in history. Nor has an end yet come, but the imagination, dismayed at the extent of the losses and at the terrible misery and sufferings entailed on the sick and wounded in such circumstances, naturally shrinks from any attempt to forecast further horrors. It prefers to dwell upon the hope and the belief that the aim and the object of war being the disablement of the enemy the more speedily and completely this can be attained the sooner will peace be secured. Although it does not come within the purview of the medical journalist to deal with military history of an epoch-making kind the fact must be recognised that the Japanese strategical plans have been admirably conceived and wonderfully executed.

A Harbin telegram states that the greater number of the surgeons and a large portion of the Red Cross material have remained at Mukden. The sanitary services are said to be

completely disorganised. Chloroform and antiseptics are lacking. The sick are piled up on uncovered trucks and the mortality is frightful. All civilian medical men are being requisitioned. The state of confusion is indescribable and it is the same at Tieling.

The St. Petersburg correspondent of the *Petit Journal* says that Harbin has been turned into a vast hospital. "Numerous trains," he adds, "are arriving laden with wounded, mostly half frozen."

The Central Committee of the German Red Cross Society has advised the executive that in view of the war in Africa the committee is regretfully compelled to economise its expenditure and that as much money is required for Germany's needs the German Red Cross Society will be obliged either to withdraw its hospital from Kharbin in June or to ask the Russian Red Cross Society to bear a portion of the cost of its maintenance. The reply received is that everything possible would be done to meet the wishes of the German Committee.

Correspondence.

"Audi alteram partem."

THE MEDICAL MAN AS EXPERT WITNESS.

To the Editors of THE LANCET.

SIRS,—Dr. W. B. Ransom's address to the Nottingham Medico-Chirurgical Society, published in THE LANCET of March 4th, p. 591, is very interesting and instructive but the only remedy I can see available is in what he says in conclusion—namely: "The system of Crown referees was intended to avoid this state of things but for some mysterious reason judges have ignored their existence." These judges are lawyers and I suppose they think they can assess the medical evidence better than a medical man or a lay person. Lawyers are always great on the "law of evidence" and we find as much divergence of opinion amongst them as we do amongst medical men. Even the highest judges in the land differ amongst themselves in the interpretation of the law—laws which have been drawn up by lawyers themselves—so that I do not think there is any more "temperament"—if this is the word—amongst medical men than we find amongst barristers and solicitors. It is sometimes said we are all more or less mad because of our peculiarities or idiosyncrasies, or I suppose we may now consider ourselves more or less akin to Ananias and some as related to Thomas called Didymus.

It would, however, be well both for the masters and also the workmen under the Workmen's Compensation Act if the medical referee could be called in early in every case of dispute and act as arbitrator between the medical men on both sides. The masters employ a medical man to look after their interest and why should not the men have the same privilege? The monetary consideration affects the workman just as much as it does the employer and if a medical arbitrator having the confidence of both could act as assessor after hearing the evidence on both sides, and making the examination himself, much would be gained and we should hear little of the conflict of evidence or of the "rinderpest" cases. In many of these cases sufficient note is not taken of the history of the case and therefore conclusions are arrived at which are not always justified.

The medical expert witness can only give his *opinion* after he has inquired into all the circumstances, he cannot speak as to facts. If a man's life is shortened by one minute through an illegal act of someone then according to law the person guilty of the act is guilty of manslaughter. Some judges have held this to apply to the workmen's compensation cases and hence when an injury has been received by a workman suffering from organic disease it is not difficult to conclude that the injury has accelerated death.

There are, however, many cases which are not necessarily fatal and in these scrupulous care should be taken with the case of injury. One remarkable case out of many occurs to me just now and this case, if it had been decided by the judge against the applicant, might have cast serious reflection on the medical attendant. The case was this. A man, under 40 years of age, received a fall of dirt from the roof on his right leg. He was able to hobble home and his wife went for the pit surgeon; he saw the case within two hours and within five of the man receiving the injury. He continued to attend the man for some weeks. The skin broke down and ulcers appeared. There was no doubt about these ulcers being specific and the man had to admit having had syphilis some years before. After a time the employers' insurance company refused to pay owing to the report of their medical officer saying that these ulcers were entirely due to syphilis and not to injury, being broken-down gummata. Although the pit surgeon could testify to the injury there was also other evidence of an accident, yet the surgeon held he was not suffering from the effects of the accident. No doubt in a healthy man this would have been so and there would have been no case for prolonged compensation. The judge, however, held that (1) he had received an accident; (2) he had not recovered from the effects of the accident; and (3) although he might be suffering from specific disease he was entitled to his compensation.

Having occasionally to appear in such cases I could if it were necessary give numerous similar instances. I appeared in one case before a learned judge who had as a barrister had cases of "railway shock." I believe he had experienced a railway shock himself. My case was that of a collier who had a severe injury and a fracture of his leg at the junction of the upper with the middle third. He had been off work 15 months, had firm union, and was getting fat from idleness and beer. I was sure he could follow labouring work. When, however, the surgeon was cross-examined and asked really what was the matter with the man he said he was suffering from *shock;* this, of course, worked the oracle and I got a cross-examination from the judge himself, when I stated that a collier who had a broken leg 15 months ago could not be still suffering from shock. My definition of "shock" and its effects was too feeble for the judge who kindly informed me that Charles Dickens, who had been in a railway accident 25 years before his death, died from the effects of the shock. Well, this was too much for me; the fear of contempt of court kept my mouth closed but my thoughts told me that Charles Dickens must never have received his compensation from the railway company. Apologising for the length of this communication,

I am, Sirs, yours faithfully,

W. BERRY, F.R.C.S. Irel.,
Senior Honorary Medical Officer, Royal Albert
Wigan, March 6th, 1905. Edward Infirmary, Wigan.

THE CLASSIFICATION OF THE INSANITIES.

To the Editors of THE LANCET.

SIRS,—I can pretend to no more than a languishing interest in the subject of the classification of the insanities, believing that further disputation of this matter is largely labour lost and that our energies can now be far better employed in the investigation of the diseases in question. But I will ask permission to criticise a few points raised in the annotation in THE LANCET of Feb. 18th, p. 445, entitled "Kinds of Insanity," which deals with an article with the same title by Dr. C. A. Mercier in the *Journal of Mental Science* for January last. Dr. Mercier says: "Puerperal insanity is acute insanity occurring within an uncertain time of childbirth, and if the antecedent of childbirth is unknown or disregarded there is nothing whatever in the clinical picture of the disease that is different from other cases of acute insanity that have no connexion with the puerperium." In his "Text-book of Insanity" (1902) Dr. Mercier writes: "Puerperal insanity is always an acute insanity ..... in addition to the description that has already been given of acute insanity there are certain characters special to the puerperal variety." He then refers to the impulsive violence (also seen in acute insanity) which in the puerperal form is usually directed against the infant; also to the fact that there is often a septic element in the case. Dr. Mercier, in his article to which your annotation refers, says that the insanity of pregnancy has a much better right to be considered a disease than puerperal insanity, since "the fact of the pregnancy is a continuing feature in the clinical picture, a feature which at once marks off the case from all other cases

of insanity." To my mind the continuing feature of pregnancy in the one case has, to say the least, no greater demarcating significance than the association with the puerperium in the other. For the association with the puerperium connotes *infection* and I believe that is the important point to have in mind. Dr. Mercier says in his book referred to, "Often, but by no means always, there is a septic element in the case." This is a somewhat vague statement. He produces no figures, nor does he show that he has investigated the point with such means of determining the question of infection as are at present at command. It is not necessary that the lochia should be offensive and the uterus tender (two points in evidence of infection to which he alludes) in order that there should be septicæmia. The pathological problem requires finer and more difficult methods of investigation than those above implied in order to its solution. Even in 1892 we find in Griesinger's "Pathologie und Therapie der Psychischen Krankheiten" (Levinstein-Schlegel's enlarged edition) these words, "Puerperal psychoses always coincide with an infection," and according to Hansen, quoted in this work, 42 cases out of 49 of puerperal psychoses gave evidence of puerperal infection. Campbell Clark (quoted by Griesinger), investigating 40 cases, says that in all the cause for the psychosis was blood poisoning from a peripheral lesion. And by puerperal insanity he means those psychoses which are connected with puerperal infection. I believe that with more abundant and skilled bacteriological and pathological research the nexus between the two conditions will be more fairly established. I might add here that cases of puerperal insanity have been treated with antistreptococcic serum on the assumption of septicæmia, and I can at present remember such an instance reported by Mongeri from, I think, the Italian Hospital in Constantinople, in the *Zeitschrift für Psychiatrie*, where gratifying results were obtained. I am at present treating a case similarly myself.

Of course, if we were merely to take the mental symptoms of puerperal insanity it might be said that there was nothing whatever to distinguish the case from other cases of insanity, though I find Savage states that "there are still some symptoms commoner here than in other cases of mania: sleeplessness, apprehension, dislikes of relatives, erotic tendencies, mistakes of identity, and hallucinations of smell and taste." But Dr. Mercier's observation is made about the clinical picture *of the disease* and the disease, as everyone knows, has *par excellence* (with paralytic dementia and acute delirious mania) an important somatic side. There is commonly fever with the usual symptoms of that state, often very grave ones. In deciding whether puerperal insanity has a right to be considered a disease we have to look at the whole clinical picture. I hold it to be important that in the puerperal psychoses the great probability of septicæmia should be well in view and I should much prefer to retain the present term "puerperal insanity" (or preferably the term "psychoses associated with puerperal infection") rather than classify the condition under two tables, or two columns of one table, the one stating the fact of the puerperium and the other that of the insanity. The preferable designation, as I regard it, and which I give above, appears to me as reasonable and legitimate and practically useful as the expressions "rheumatic iritis" and "gonorrhœal arthritis."

To revert once more to the distinction drawn by Dr. Mercier as to the respective claims of puerperal insanity and the insanity of pregnancy to the title of a disease, it appears to me that, *mutatis mutandis*, the description of puerperal insanity which I have at the outset of these remarks quoted from the article is equally true of the insanity of pregnancy, and Dr. Mercier himself on the same page as that on which the quotation appears says: "There is nothing in the insanity of a pregnant woman except the pregnancy which differentiates the case from other cases of acute insanity." Yet whilst puerperal insanity is excluded from the list he gives of varieties of insanity that have any claim to the title of distinct diseases, insanity in pregnant women is admitted; only, however, "some cases" thereof. But there is nothing in what went before to prepare the reader for this qualified form of admission. Notwithstanding the above we find on reference to Dr. Mercier's book that amongst the "Varieties of Insanity" (subdivision "Insanities of Reproduction") both the conditions referred to appear.

Passing next to the claims of senile insanity to be considered a distinct disease "in virtue of the uniform and specific clinical picture that it presents," Dr. Mercier admits that he had some doubt, but this, it would seem, was dissipated on reference to Clouston's account of the malady, where that author confesses himself astonished at the immense variety of symptoms present in different cases. "This dictum," says Dr. Mercier, "at once abolishes the right of senile insanity to a distinct place in nosology." On a parity of reasoning should not hysteria, and perhaps influenza and typhoid fever, be excluded from our nosology? And since Dr. Mercier finds that senile insanity presents a "uniform and specific clinical picture" why should he, in deference to a dictum, exclude it from his category of distinct diseases, the criterion for admission to which, he tells us, is the "distinctness of the clinical picture presented"? If questions of nosology are to be determined or influenced by chance reference to text-books (I should judge Dr. Mercier to be one of the last persons so to determine), well and good. I pick up that excellent manual, Weygandt's "Psychiatrie," where, under "Rückbildungsirresein," I find a full and orderly description of senile insanity. I find an attenuated description (under "Varieties of Insanity," however) in Dr. Mercier's own book. I agree with Weygandt that there are usually in so-called senile insanity (the prominent feature of which state I take to be dementia but various mental states may be superimposed) symptoms which unmistakeably recall the psychology of the senium. And from the point of view of pathological anatomy (which I cannot find that Dr. Mercier in his book considers at all) it has been shown by competent observers, such as Alzheimer and Binswanger, that the alterations of the blood-vessels and their surrounding tissues are particularly noteworthy in senile insanity. I am further of opinion that as regards distribution of the lepto-meningeal changes, degree and extent of brain atrophy, extent and nature of cell changes, the post-mortem appearances in senile insanity are especially noteworthy. These various changes make up, I con-ider, a fairly characteristic pathological picture. Taking the complex of mental symptoms (and not picking out for criticism this or that feature, such as mania or a delusional state) and the pathological findings I consider there is a very fair case for placing senile insanity amongst the distinct diseases; a better case, in my opinion, than there is for insanity of pregnancy, and as good a case as there is for insanity of the climacteric, both of which are regarded by Dr. Mercier as having claim to be so called.

Dr. Mercier states, according to your annotation, that cases of insanity associated with bodily diseases, whether the latter be regarded as a cause or not, in no case present a clinical picture of sufficient distinctness to entitle them to separate rank as diseases and he excludes such from his list. But later he admits that the insanity of myxœdema is entitled to separate consideration as a specific disease and in his book he describes under "Insanity of Bodily Disease" the insanity of myxœdema, just like other authors do. Even for the purpose of collecting statistics I should prefer to collect cases under the heading "Myxœdematous Insanity" rather than under two headings in which the myxœdema is noted in one column and the insanity in another, as appears to be done in Table IV. of Dr. Mercier's article on the statistical tables in the October number of the *Journal of Mental Science*.

Your annotation states that Dr. Mercier would admit the claims of hebephrenia and katatonia to separate rank as diseases, but he says, on the contrary, that their individuality is destroyed for purposes of classification by the fact that they shade off by insensible degrees into the mass of insanity, and he does not mention them amongst his varieties of insanity with claims to the title of distinct diseases. The peculiar motor symptoms constitute the specific feature of the katatonic form of dementia præcox, whereas stupor is present, it is stated by those who classify this disorder, in not quite half the cases. If, as Dr. Mercier says, a specific clinical picture is essential to our notions of disease, I think it may well be doubted if various conditions recognised in the domain of general medicine have any more claim to the title than katatonia. Since the days of Kahlbaum and his school katatonia has been classed as a distinct variety of disorder by a large number of alienists. Whilst not disposed to class it thus myself I think it has as much claim to be so treated as certain of the varieties of insanity the claims of which are recognised in the article to which your annotation refers.

I am, Sirs, yours faithfully,

Carmarthen. E. GOODALL.

THE CARBON FACTOR IN THE GENESIS OF GOUT.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Feb. 11th (p. 348) Dr. D. F. Shearer contributed an article entitled "Carbonic Acid as a Factor in the Genesis of the Gouty State." This article is noteworthy in that it directs attention—for the first time, so far as I know—to a retardation of carbonaceous excretion as the fundamental factor in gout. The writer argues that in the gouty the intake and absorption of carbonaceous material are excessive as regards the amount of physical exercise; that consequently the arterial blood is flooded with carbonic acid; that this excess of carbonic acid is responsible for the retention in the blood of uric acid which is known to occur in gout; and that the salutary influence of physical exercise in the gouty depends upon the increased exhalation of carbonic acid from the blood. A weak point in this hypothesis is that exercise increases, not only the exhalation, but the production, of carbonic acid.

Further than this, the argument rests upon the assumption—widespread but premature in my opinion—that carbonaceous material absorbed from the alimentary canal is of necessity katabolised or anabolised. Normally the blood is relieved of its carbonaceous material mainly by the capacities of the nitrogenous tissues for katabolism and anabolism; but we have no warrant for assuming that these capacities are invariably adequate for the task. Indeed, it seems a larger assumption to postulate an invariable adequacy than an occasional inadequacy.

Now an inadequacy of carbonaceous metabolism, even though slight, would lead to an accumulation of carbonaceous material of some kind in the blood. And if this be granted a large number of observations (experimental and others) could be adduced to show that such an accumulation leads to deficient renal excretion of uric acid. The result would be the progressively increasing uricæmia which is known to antecede the paroxysm of articular gout. Such would eventually involve extravascular deposition of a portion of the uratic load; and should this occur, as commonly happens, in some structure such as a joint which is capable of responding by acute inflammation to the irritation of the urate then we should have a paroxysm of acute articular gout. On this view the mechanism and influence, not less than the causation, of acute gout become clear. Acute arthritis involves pyrexia; pyrexia increases the rate of combustion and so disperses the carbonaceous accumulation; the dispersion of the carbonaceous accumulation releases the uric acid accumulation and permits of free renal elimination; through renal elimination the blood recovers its solvent power and reabsorbs the extravascular deposits of uric acid. Thus is established convalescence not only from the arthritis but also from the condition of depraved general health which so commonly antecedes the arthritis and which is concurrent with the double progressive accumulation referred to. As Mead long ago said, "Gout is the cure of gout."

I believe that a progressive carbonaceous accumulation is *a common humoral factor of disease* and leads under varying conditions to various paroxysmal affections (amongst them acute articular gout), most of which result in relief from the carbonaceous accumulation.

I am, Sirs, yours faithfully,

Feb. 27th, 1905. FRANCIS HARE.

OLD EPSOMIANS AND THE JUBILEE OF EPSOM COLLEGE.

To the Editors of THE LANCET.

SIRS,—May I through your columns make known to old Epsomians generally (a very large percentage of whom enter the medical profession) that the Epsomian Club, in conjunction with the present head master, Dr. Hart Smith-Pearse, are arranging to commemorate the jubilee year of the school (1905) by publishing a register of old boys and their various professions, distinctions, &c., together with a brief sketch of the history of the college since 1855 and other items of interest?

Some dozen or so of us have undertaken the task of collecting the necessary statistics and circulars have been sent to all those whose addresses we can find. There are many hundreds of old boys, especially those who joined the College in its earlier years, whom we cannot trace and therefore I venture to ask, through your columns, any old Epsomians who have not received any intimation and who know the addresses of any old school fellows, especially those who have not entered the medical profession, to be kind enough to send me a postcard so that we may get into communication with them.

I am, Sirs, yours faithfully,

PERCIVAL TURNER.

4, Adam-street, Adelphi, London, W.C.,
March 13th, 1905.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

To the Editors of THE LANCET.

SIRS,—From personal knowledge of the experience and the exceptional ability of the reporter of the Medico-Psychological Association quarterly meeting at York on Feb. 23rd last I authorised him to send a report to your columns. He now writes to me expressing his regret that the substitution of the word "two" for "three" should have occurred as a purely accidental error in transcribing. I desire to be associated with his regret.

I am, Sirs, yours faithfully,

ROBERT JONES,
Honorary General Secretary of the Medico-Psychological Association of Great Britain and Ireland.

March 14th, 1905.

SHIFTING DULNESS IN PLEURAL EFFUSION.

To the Editors of THE LANCET.

SIRS,—Mr. Rickman J. Godlee's paper on Shifting Dulness, which appeared in THE LANCET of Feb. 25th, p. 480, though written primarily from the surgical point of view, invites comment from a physician. Mr. Godlee implies, and in your leading article upon his paper in the issue of March 4th you definitely assert, that "it is generally taught that the dulness due to a pleuritic effusion or to an empyema shifts with position under the influence of gravity." I should not have thought this to be the case but, on the contrary, I should have supposed it to be now generally accepted that the level of dulness in simple pleural effusion, whether serous or purulent, did not readily shift with position. I certainly have taught this for many years and in my book on "Diseases of the Respiratory Organs," p. 659, I write as follows:—

Alteration of percussion lines with position.—In cases of hydropneumothorax, i.e., where air and fluid are present together in the pleura, it is very easy to make out the change of level, for this takes place quickly as the patient changes his position from the recumbent to the sitting posture; but it is not by any means so easy to demonstrate this change when fluid alone exists in the pleura. A change indeed does take place, but in most cases only slowly. The explanation is to be found in the fact already mentioned—viz., that as fluid forms, although the lung no doubt undergoes general shrinkage from its own elasticity, still the collapse is most marked and may be complete in those portions of the lung which are immediately adjacent to the fluid, while the rest seems to be *pro tanto* dilated. In this way the fluid is to some extent held up, as it were, against the action of gravity, or, at any rate, the lung will not float as readily or change its position as easily as we might expect.

I would add that if the dulness does not shift in front or in the axilla it is still less likely to do so behind, for it is at the base posteriorly that the collapse of the lungs is most marked. If these facts are not yet generally recognised they have, at any rate, been long enough known, as the following quotation from Fagge[1] shows:

A circumstance which has long attracted the attention of clinical physicians is that temporary changes of posture of the patient often fail to alter the position of the liquid within the chest so far as one can test by percussion.

The answers sometimes given by students in examination, if they may be taken as any indication of the views of their teachers, seem to justify the conclusion drawn by Mr. Godlee that the teaching on this point is in some quarters not sound. The fact is of so much importance and ignorance of it may so easily lead to errors in diagnosis that Mr. Godlee has done good service in drawing attention afresh to it.

The upper borders of the liver and the heart as determined

[1] Principles of Medicine, 1889, p. 916.

by percussion remain the same both in the erect and recumbent position. No doubt this is in part due to the comparative flatness of the arch of the diaphragm in front, but it is chiefly the effect of the action of the abdominal muscles which in the erect position contract and thus support the weight of the liver and the heart and prevent them from falling. Where the abdominal muscles are greatly relaxed or very weak it is probable that these organs may fall in the erect position and the upper limit then descend.

It is, as Mr. Godlee says, useless to percuss out the abdominal viscera when the patient is standing up, but I do not agree with the explanation which he gives—viz., that there is in the young and healthy adult not much gas in the small intestines and only a moderate amount in the stomach and large intestine. The true explanation is to be also found, I believe, in the contraction of the abdominal muscles, which is of itself sufficient to give an impaired or even a dull note. I remember an excellent illustration of this being given by an acrobat who exhibited himself in the theatre at St. Bartholomew's Hospital. He was able to dislocate most of his joints by muscular action and could wriggle through a hoop only just large enough to go over his head. He was able also to produce a phantom tumour in the abdomen as large as his head. Percussion over this was quite dull and the dulness was evidently due to contraction of the abdominal muscles. When the abdominal muscles are large and well nourished, as in the young healthy adult, their contraction in the erect position would rob abdominal percussion of any value. In overfed dyspeptic persons with pendulous belly and ill-nourished muscles the difficulties of percussion in the upright position though decreased by the want of tone in the muscles would be increased by the amount of fat in the abdominal walls. So that in any case abdominal percussion in the erect position would be misleading.

I am, Sirs, yours faithfully,

Wimpole-street, W., March 6th, 1905. SAMUEL WEST.

THE GOUTY DIATHESIS.

To the Editors of THE LANCET.

SIRS,—As it appears from Dr. S. A. Arany's letter published in THE LANCET of March 4th that he has misunderstood the aim of the experimental investigations recorded in my paper in your issue of Feb. 11th, and also my estimate of the significance of their results, perhaps you will kindly allow me to make these points clear. It is generally admitted that an excessive meat dietary is prejudicial to gouty individuals, the reason usually assigned being the large amount of uric-acid-forming bodies in this diet. As a result of a long series of laboratory investigations I was led to conclude that uric acid does not play the important etiological rôle in the production of gout that is commonly supposed and in this connexion it is of interest to note that this teaching of the laboratory is in harmony with the views expressed by some leading clinicians of wide experience in this disease. In a recent paper[1] I submitted a summary of the facts obtained in these investigations and I suggested that the present position of our knowledge of gout made it advisable to prosecute inquiry along the following lines: (1) to ascertain the effects of a special dietary—e.g., an excessive meat diet—on the economy; and (2) to test the validity of the view that there is an infective element in the disease. In pursuance of this inquiry I fed a number of fowls on a diet of meat and water. Fowls were selected as being subjects relatively prone to over-production of uric acid in the tissues. I later made a series of similar observations on rats, whose normal diet more closely resembles that of the human subject. In neither series was there any deposit of urate of soda; in both very striking changes were induced in the thyroid glands. Dr. Arany states that this result proves nothing regarding gout. I quite agree with him. My point is that the facts are most suggestive and it appears to me that they justify the suggestion that in people who persistently take an excessive amount of meat or whose forbears have over-indulged in this direction there may be present a condition of thyroid gland which is different from that of healthy individuals and, further, that this difference may have something to do with the gouty diathesis. Dr. Arany lays stress on the facts that gout is found in subjects who have never been large consumers of meat and may even be met with in patients who are practically abstainers from a meat diet. These may be regarded as well-established facts in the disease but I submit that a deeper insight into the significance of these facts may lead to their being correctly regarded as important evidence in favour of my theory. No definite statement on this point can be made until we ascertain the condition of the thyroid and the forms of its functional activity in the cases referred to by Dr. Arany.

[1] Brit. Med Jour., Jan. 21st, 1905.

Your correspondent states that in a series of almost 400 cases of gout he "did not observe in a single case any symptoms which could have related to changes in the thyroid gland." This statement implies two assumptions which call for comment. It presumes a precise knowledge of the functions of the thyroid gland and also a comprehensive grasp of the changes induced in the economy by a diminished secretion (hypothyroidism), excessive secretion (hyperthyroidism), and perverted secretion of the gland. With regard to the first assumption, I would point out that recent works (Jeandelize, Swale Vincent and Jolly, and others) have shown that our knowledge of the physiology of the gland is very incomplete. With regard to the second assumption, it is probably not too much to say that all clinicians who have devoted special attention to the subject of the thyroid gland in its clinical and therapeutic aspects are of opinion that a knowledge of the changes induced in the system by alterations in the character of the thyroid secretion still remains one of the most important desiderata in our medical knowledge. In these circumstances one is perhaps justified in hesitating to attach much scientific value to Dr. Arany's pronouncement on the results of his clinical experience regarding a relation between gout and the thyroid gland, and it may not be unreasonable to hope that a record of fresh and important facts, which show the possibility of such a relation, may lead clinicians who have shared his experience to extend the area of their observation, and closely to scrutinise the facts that lie within their purview, in order to obtain positive evidence for or against the existence of the suggested relation.

I am, Sirs, yours faithfully,

Edinburgh, March 6th, 1905. CHALMERS WATSON.

THE INTRUSION OF THE LAYMAN INTO MEDICAL PRACTICE.

To the Editors of THE LANCET.

SIRS,—May I be allowed to draw attention to some points raised by the letter in THE LANCET of March 4th from Messrs. Allen and Hanbury? The particular case mentioned can no doubt be dealt with by the gentleman whose letter called forth their reply but in the latter half of their letter Messrs. Allen and Hanbury write as if thereby they dispose of the whole question. I venture to think that there is more to be said. No one can blame Messrs. Allen and Hanbury for opening "a department of business" at the request of leading members of the medical profession. That they should carry it on—with a costly plant requiring constant expense to keep it up to date and an assistant paid we hope an adequate living wage, and all this at "an entirely insignificant profit"—seems worthy of commendation from all but shareholders. This "department of business" is described as an endeavour to assist the profession in "mere mechanical and subsidiary matters." It is admitted that it includes not only the taking of x ray negatives but also exposures for treatment. The assistant who does the work has no medical qualification. The necessity for medical training in the making, and especially in the interpretation, of x ray negatives is obvious enough to all who are conversant with the subject. The therapeutic use of x rays should certainly be in the hands of medical men who have given time and study to the subject. It is beside the mark to say "under the direction of the medical man," for unless himself well versed in the detail of the work he is entirely in the hands of the person to whom he intrusts it. As to the "presence of" the same, it would be interesting to know how often the medical man attends the numerous sittings necessary. Then as to the establishment of such a "department of business" by a commercial firm. Why should it be called for at all—even if conducted on the almost philanthropic lines of Messrs. Allen and Hanbury? It is open to the profession, as they kindly point out, to "take patients to professional brethren who practise radiography," "but

several have told us that they object to do this." They might have said "many" object—it is a matter of common knowledge; but I have never heard an explanation from anyone whose opinion was valuable from the side of those who prefer to take their x ray work to non-medical people rather than to their "professional brethren who have made a study of the subject."

I am, Sirs, yours faithfully,
F. HARRISON LOW, M.B. Aberd.

Henrietta-street, W., March 7th, 1905.

IRRIGATION IN PERFORATED GASTRIC AND DUODENAL ULCERS.

To the Editors of THE LANCET.

SIRS,—In the recent correspondence upon duodenal ulcer marked difference of opinion has been expressed as to the advisability of irrigation in operations for ruptured ulcers. The same difference of opinion was evident in the discussion which followed a paper on 50 Consecutive Cases of Perforated Gastric and Duodenal Ulcer which I read before the Royal Medical and Chirurgical Society in November, 1903. Since that time I have carefully studied the question of irrigation in cases upon which I have operated personally or have seen others operate and I have come to the conclusion that irrigation is advisable in all cases of acute perforation, whether operated upon early or late, and for the following reasons. Firstly, the mortality has been lower in those cases treated by general irrigation at St. George's Hospital during the last two years than in those treated without irrigation. Mr. G. R. Turner has already referred to a series of 12 cases of ruptured gastric and duodenal ulcer with nine recoveries; in these cases thorough irrigation of the peritoneal cavity was a prominent feature in the treatment. Secondly, complications have been far less frequent in cases in which irrigation has been employed and this is a very trustworthy test of the extent to which the peritoneal cavity has been cleansed. Thus in three cases upon which I have operated recently three and a half, five, and seven hours respectively after perforation, and in which I flushed out the peritoneal cavity with some 10 to 20 pints of saline solution, convalescence was absolutely uninterrupted. Thirdly, I have not yet seen a case in which the abdomen was opened above the pubes without a large quantity of turbid fluid being found in the pelvis even in the earliest cases. It seems to me that the thorough removal of this fluid, which can only be effected by sponging and irrigation, must greatly assist in the patient's recovery. Further, this proceeding will lead to the formation of far fewer adhesions in the pelvic cavity—a matter of especial importance in females. In two instances I have met with severe dysmenorrhœa and sterility following directly upon perforation of a gastric ulcer in which no attempt was made to cleanse the pelvic peritoneum. In each case the pelvic organs were felt bimanually to be firmly matted together.

These facts appear to me to form a strong argument in favour of thorough irrigation in these cases.

I am, Sirs, yours faithfully,
T. CRISP ENGLISH.

Grosvenor-street, W., March 7th, 1905.

CHLORÆTHOFORM.

To the Editors of THE LANCET.

SIRS,—It is not in our province to express any opinion of our own on a therapeutic or pharmacological question, but we may be permitted to point out that the statement that chloroform prepared from alcohol is superior as an anæsthetic to chloroform prepared from acetone is by no means generally accepted by medical authorities. Some eminent surgeons use regularly the chloroform prepared from acetone and a vast number of general practitioners find the same anæsthetic quite satisfactory. We have been told by more than one anæsthetist that the so-called chlorœthoform does not give them any better results than the pure acetone chloroform. If no appreciable difference can be detected in the behaviour of a mixture containing 0·25 per cent. of ethyl chloride from that of pure chloroform, it seems highly improbable that a mixture containing only 0·05 per cent. can comport itself differently from pure chloroform. Yet 0·05 per cent. is all that is alleged to be present in chloroform prepared from alcohol. It may further be noted that Mr. H. Finnemore and Dr. J. Wade in their communication to the Chemical Society[1] do not describe how their chloroform was prepared or give evidence that chloroform formed from ethyl alcohol must necessarily contain ethyl chloride. In some samples of alcoholic chloroform we have not been able by the usual analytical methods to detect ethyl chloride, which must therefore have existed, if present at all, in very minute quantity. It seems to us that up to the present time sufficient evidence has not been adduced to establish the views favoured by Mr. Finnemore and Dr. Wade.—We are, Sirs, yours faithfully,

Edinburgh, March 6th, 1905. J. F. MACFARLAN AND CO.

ANTHRAX AT NÜRNBERG.

(FROM A SPECIAL CORRESPONDENT.)

A VISIT to Nürnberg on the way through from Geneva to Berlin has given a good opportunity of studying on the spot the method of steam disinfection as a preventive against anthrax, on which Dr. T. M. Legge will be giving full information in the Milroy lectures this month. Nürnberg is a town of 285,000 inhabitants, including amongst others many brush and bristle factories. By far the largest concern in this line is the "Vereinigte Pinsel Fabriken," which has combined the chief brush factories, and in one of these is a complete steam disinfecting apparatus through which all the raw material used in this company's works is passed before undergoing any other treatment. The apparatus is to all intents and purposes a Washington-Lyons disinfector, built into a wall so as to divide the infected in-take room from the non-infected out-take room in our ordinary disinfecting installations. It is made by Rietschel and Henneberg of Berlin and Dresden. The disinfecting house is a small separate building, surrounded by air on all sides and fed by steam at a pressure of two atmospheres from the same boilers which supply steam for treatment of the material at a later stage at a pressure of eight atmospheres. The disinfecting house is well ventilated directly by doors and windows as well as by more elaborate inlets and outlets, the air entering by inlets near the floor being warmed by the radiators which maintain the general warmth of the two rooms. The door of the apparatus, which is eight feet high and fastened by eight strong screw bolts, is opened on its hinges and the cage is run out on wheels. The bundles of bristle are loaded on the transverse trays, which slide in one above the other, the material likely to afford resistance to the penetration of the steam being opened out, while some packets wrapped up in paper are slashed with a knife. In the midst of one of the lightest bundles is stowed away an electric contact thermometer, in which the contact of two halves of a sphere, one half fitting into the other, is prevented by an axial cylinder inside them composed of fusible metal which melts at 103° C. and then allows contact, notifying the fact by the ringing of a bell outside the apparatus. The caged bales are protected from moisture condensing out of the steam by a metal roof and between this metal roof to the cage and the outside metal of the disinfector the steam is eventually let in, being thus well distributed through the chamber. Two maximum thermometers are hung in the interior to record for trade purposes the highest temperature reached during the process. While the cage is wheeled out on metal runners a glimpse into the air-jacketed chamber shows its lower part occupied by horizontal radiators which warm up the chamber by dry heat so as to prevent condensation of moisture when the steam is admitted, for moisture and a high temperature are both alike injurious to the bristles. The cage, fully loaded, is now run in, the door is closed and bolted, and after any time from one to three hours, as may be convenient to the staff, steam, sent across from the boilers at a pressure of two atmospheres, is admitted to the disinfector. An outside manometer shows when the pressure inside reaches the limit of 0·15 atmospheres required by imperial regulations and the ringing of the bell records the fact that a temperature of 103° C. has been attained in the interior of the bundles inside. Not until both these records have been obtained, after a period varying between 17 and 27 minutes from the start, is the electric circuit broken by hand so as to

[1] Journal of the Chemical Society, July, 1904.

stop the bell ringing, and the actual time is recorded in a book as the time at which disinfection began. A current of superheated steam is now flowing through the apparatus, guarded by a safety valve, and at the end of half an hour the time is again recorded in the book and the steam is turned off from the chamber and on again through the pipes which keep the chamber warm. The disinfected material is thus allowed to cool down gradually for from two to seven hours, while steam is replaced by warm air; and, finally, the further door is opened, the cage is run out into the non-disinfected room and unloaded in safety by the workmen who have cast off the washable overalls in which they loaded the infected material and washed their hands and faces in soap-and-water and disinfectant. The overalls are sterilised each time. This process is repeated with fresh material every morning; two workmen are sufficient for the work, and the average cost comes only to four marks per 100 kilos, about 2*s.* per hundredweight—a quite insignificant amount. Small factories in the city disinfect their material in the disinfectors erected by the city authorities to serve both this purpose and also that of disinfection in cases of other infectious diseases. Here the cost to the owner is five marks per 100 kilos. Full and detailed investigation by the Imperial Health Office in Berlin is said to have proved the complete efficacy of this procedure in killing even anthrax spores. The procedure has been in vogue in these factories owing in some degree to demands from the workmen, since the promulgation of rules to this effect by the city in 1895. It was not, however, till 1902 that the Imperial Government issued an order on the subject; and in this Imperial order only foreign material is subjected to disinfection.

But the proof of the pudding is in the eating, of the spore in the pathology. Have these regulations diminished the number of cases of anthrax? To determine this question it was necessary to consult the Statistical Bureau, which referred to annual reports for its tables of mortality, and the police-office which turned up a memorandum in MS. as to the cases notified. The results thus obtained are the following:—

—	Cases.		Deaths.	
	Men.	Women.	Men.	Women.
1888...	1	—	1	—
1889...	—	—	—	—
1890...	3	—	1	—
1891...	1	1	1	—
1892...	1	—	1	—
1893...	4	1	—	—
1894...	4	1	1	—
City Regulations introduced.				
1895...	1	3	—	2
1896...	3	2	1	1
1897...	1	1	1	1
1898... ... ... }	12		—	—
1899... ... ... }				
1900...	?		—	—
1901...	?		—	1
Imperial Order issued.				
1902...	?		—	—
1903...	?		—	—
1904...	?		1?	—

All cases are notifiable by all medical men diagnosing the condition, but unfortunately these notifications for the last seven years have simply been filed and never compiled, still less published, and the office will have very great trouble in sorting them out, which, however, the staff hope to be able to do as a result of to-day's visit, although it may mean a fortnight's work. It is incredible that in a town of such size and importance the wider value of notification should be absolutely squandered on an office file. But problems of public health are not dealt with on far-seeing lines in most continental towns of my acquaintance.

The police secretary was of the opinion that a certain number of cases had been notified during the past few years and the 12 cases in 1898–99 do not look as if the number had been decreased by disinfection. Moreover, he was inclined to believe that many cases had passed unnotified. It appears that in the early "nineties" only two medical men in the town interested themselves in the disease and many cases may have passed unnotified. Since then the disease is well recognised, even by workmen; but it is also well treated in an early stage by every practitioner and when a local pustule has been simply excised without any general symptoms or unfavourable circumstance the case will not improbably escape notification, especially seeing that the duty of notification is not so generally recognised on the continent as with us, even by many of the medical profession who openly plead the interests of the patient as opposed to those of the State. It is quite likely, therefore, that the total number of cases has not diminished since the introduction of steam disinfection. But there is no gainsaying the mortality figures, which show only one certain and one doubtful death during the last seven years. In addition to this may be added the statement of the director of the large factory already referred to that they have not had a single case of infection since the introduction of their steam apparatus and the general statement of the superintendent of the hospital, who till last year was also Stadt-arzt with many of the functions of a medical officer of health, that there had been no case notified or under treatment in the hospital in recent years.

THE EPIDEMIC OF SCARLET FEVER AT NORTHAMPTON.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Northampton, March, 1905.

THERE has been an epidemic of scarlet fever at Northampton which presents some peculiar features. The population of the town must now amount to a little over 90,000. This is equal to a very small fraction under five persons in each house and 26 inhabitants per acre. Thus, except it be in certain localities, the town cannot be said to suffer from overcrowding. Indeed, the death-rate is very low and in the last report published, which is for 1903, it is estimated that though the average death-rate for the previous ten years was 15·6 per 1000 the death-rate for 1903 was only 13·5 per 1000. At the same time it must be noted that the birth-rate did not exceed 24·4 per 1000. This is the lowest birth-rate on record. In 1893 the birth-rate was 30 per 1000; in 1895, 31·5 per 1000; and since then it has steadily decreased. The cause of this fall in the birth-rate is not to be ascribed to a decrease in the frequency of marriages; it is wholly due to a reduction in the fertility of marriage. In 1891 100 families produced on an average 26 children and ten years later the average was 22 children. Though such reduction in the birth-rate accounts in a measure for the low death-rate there has also been a reduction in the proportion of deaths of the infants born—namely, 137·2 deaths per 1000 infants under one year of age, and this is a low rate for Northampton. Thus, and taken altogether, it may be said that the vital statistics testify to satisfactory and to improving conditions. Nevertheless there has been an extraordinary prevalence of scarlet fever. The epidemic has slowly developed itself and has now entered upon its third year, though it is showing evident signs of abatement.

During the first quarter of 1903 there were 129 cases of scarlet fever notified, resulting in a case mortality of 2·3 per cent. During the second quarter the number of notifications—127—was almost the same but there were 5·5 per cent. of deaths, and in the third quarter 139 cases resulted in 4·3 per cent. of deaths. This is in all 395 cases for the first nine months of the year; and now the more serious development of the epidemic began, for there were 269 cases notified during the last quarter of the year. On the other hand, the proportionate mortality fell to 2·9 per cent. of the cases. Evidently matters were not likely to improve in 1904 and, indeed, there ensued a much more serious epidemic. But, and before dealing with this, it is instructive to look back for ten years so as to realise the hold which this disease has on Northampton. The only two years that can be compared with 1903 are 1897 and 1898, when there were 866 and 731 cases of scarlet fever notified. This was equal to an attack rate of 14·2 and 11·9 per 1000 of the population. In consequence of the increase of the number of inhabitants the attack rate for 1903 is only equal to 7·36

per 1000. These were the three worst years during the decade from 1894 to 1903. It is true that the attack rate was nearly as bad in 1894—namely, 7·03 per 1000, but in 1895 it amounted to only 4·4, in 1896 to 6·3, in 1899 to 5·5, in 1900 to only 1·5, in 1901 to 1·96, and in 1902 to 1·82.

In 1904 there have been no less than 2224 notifications of scarlet fever or 24·3 cases per 1000 of the population. It will be seen how very much this exceeds all previous records. Fortunately, the reduction in the proportion of deaths is as remarkable as the increase in the proportion of cases. The deaths, which amounted to 4·7 per cent. of the cases notified in 1897 and to 5·5 and 4·3 per cent. of the cases notified so recently as the second and the third quarters of the year 1903, were only equal to 1·8 per cent. of the cases notified in 1904. The argument that the proportionate mortality is less because the notifications are more rigorously enforced and more complete hardly applies in the present instance. Within the last ten years or so there has been no particular alteration in this respect. The practice of notifying such a disease as scarlet fever was fully established more than ten years ago and had become quite a habitual custom.

The first great difficulty that arose as the fever spread was to find room for the isolation of so many patients. In 1902, when only 161 cases of scarlet fever were notified, 73·2 per cent. of the patients were removed to the isolation hospital. In 1903, however, when 662 cases were notified, the proportion removed to the isolation hospital fell to 60·1 per cent. Finally, in 1904, out of the 2224 cases notified only 746 patients could be taken in at the fever hospital. This great discrepancy between the number of cases and the number of patients isolated raises the question as to the rules or principle adopted in deciding as to who should be allowed to remain at home and who should be taken to the isolation hospital. The conditions governing such choice were laid down in 1903 and the following are the principal points. The first care is to remove the patient if his or her mother is approaching a confinement. The proximity of scarlet fever infection at the time of confinement, it is well known, is most dangerous to the mother. The patients are also removed when a part of their dwelling is used as a shop, a workshop, or a domestic workshop. Again, if there are a number of children in the family this is more necessary if the family is so large and the house and the rooms are so small as to make it impossible to separate the patient from the other inhabitants. All cases that occur in institutions such as a workhouse or barracks are at once removed. Moreover, the patient is taken to the fever hospital if the adults of the family are engaged in trades likely to spread the infection, such as laundry work, tailoring, millinery, the making of underclothing, &c. Finally, the children of charwomen and others are removed when the parent has to go out to work and therefore might convey the infection elsewhere while leaving the patient unattended at home.

The next most difficult question to decide was the attitude to be observed in regard to the attendance of children at school or the closing of schools. It was soon found, however, that the disease was not localised, that it did not affect any one particular school. To do any good by dealing with schools nearly every school would have had to be closed and some 8000 to 10,000 pupils sent home. This was too serious an undertaking and as the disease was of an exceptionally mild form such rigour did not seem justifiable. Of the cases recorded among school children it was noticed that the proportion was a little higher among those who attended the non-provided schools when compared with those who attended the provided schools. It would seem, therefore, that the schools built by the old School Board are in a better sanitary condition or are more satisfactorily managed than those that were built by the various religious denominations. The difference was very slight but very general. Thus, in October last out of 351 cases notified 89·4 per cent. attended the provided and 90 per cent. the non-provided schools. In November the proportion was 88·4 as against 86·3 per cent. in favour of the provided schools.

During the epidemic there were very many cases of so mild a character that some of them not only escaped the notice of the parents but in one or two cases even medical men in attendance did not feel themselves justified in sending a notification till the period of desquamation had been reached. In other instances the desquamation was noticed at school and the pupils had been in regular attendance, no one being aware that there was anything serious the matter. The probability is that this explains the widespread nature of the epidemic. With more severe cases better care would have been taken to separate the sick from the healthy and there would have been less danger of direct infection. But though such negligence may be excusable where the symptoms are very slight and obscure there were many other cases where culpable negligence occurred. In a good many instances the patient, though suffering unmistakeably from the fever, was found lying in the living room with all the members of the family and visitors constantly going in and out. The medical officer of health of Northampton, Dr. James Beatty, seeing the immense difficulty of removing many hundred cases to the fever hospital, suggested that arrangements might be made for isolation at home by boarding out the other children. If houses could be found where there were no children the adult inhabitants might be willing to take in unaffected children from a house where a case of scarlet fever had occurred. Of course, the question of payment is the principal difficulty. In many cases the parents would not be able to pay, or at least to pay enough, and it is questionable whether the sanitary authority has a legal right to employ public funds for such a purpose. Then, again, one or more of the children thus taken in might fall ill and who in that case would pay for disinfecting and redecorating the house? This question of compensation for disturbance incurred for the protection of the public health is a phase of sanitation which has still to be dealt with. When a case of infectious disease occurs the interest of the individual undoubtedly often runs counter to that of the general public. To stop the business of a laundry, of a milk dealer, or of a tailor is often disastrous to the individual concerned and as there is no compensation forthcoming it is not surprising that concealment should be attempted. On the other hand, where there is no concealment the individual finds his business stopped, his customers scared, and finally he has to incur considerable expense in redecorating his home after it has been more or less devastated by the disinfectors. All this trouble he endures mainly for the sake of the public, for the danger, at least the immediate danger, so far as it affects himself or his family, has already been incurred. It does seem, especially when the persons involved are poor, that some compensation should be allowed. Illness naturally entails loss and sacrifice but in some cases the isolation of the patient and the subsequent disinfection may result, not in a mere temporary loss, but in something like absolute ruin. In such circumstances the temptation to conceal is very great and such temptation constitutes a public danger. These remarks, of course, apply to any town but in Northampton they acquire extra force because the hospital accommodation is not sufficient for an epidemic producing more than 2000 cases in the course of 12 months. When the patient can at once be removed to the hospital the interference with the business need not last longer than a few days. But if there should not be room at the hospital then a laundry, a tailoring establishment, or any similar business might have to be stopped for several weeks and such interference might well result in the loss of custom which had been acquired only after years of patient attention and work. Nor are such considerations, so far as Northampton is concerned, of a merely retrospective interest. During the course of the present year there have been signs of abatement in the prevalence of scarlet fever but, nevertheless, the number of cases notified is still far in excess of the normal. A few days ago no less than 280 cases had been notified since Jan. 1st, 1905. It is therefore probable that the figures for the first quarter of the current year will exceed 300. This is still a very high case-rate. Fortunately, the proportion of deaths remains very low.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Poisoned in a Sewer.

ONE of those tragic occurrences, often called accidents, the result of incautious descent into a sewer took place on March 6th at Warrington. At the inquest on the man who died the evidence showed the ignorance or folly so often seen in these cases and also the self-sacrificing courage that is

equally conspicuous in the rescuers. The first to go down the manhole was so affected that he came up at once. He then staggered and became unconscious but revived after a time. Evidently his escape was a narrow one. Two other men then went down. In a few minutes one of them fell unconscious. The other went to his help but was obliged to come to the surface and he, too, quickly became unconscious. Two other men then went down to the rescue but both were overcome. When Bretherton, one who had previously been down, had recovered he went down again to look for his mate and found him with the two who had gone into the sewer last lying at the bottom of the manhole. A crowd had gathered by this time and one of those assembled, James Stockton, for his name deserves mention, at once went down to render help but had in a short time to come up. However, he went down again, taking a rope which he tied round one of the men who was pulled up. Then he roped a second who was also safely drawn up. He then went down for the other man, Baxter, who was dead when brought up. It is interesting to note that when medical aid arrived some of the spectators were already using artificial respiration. The evidence seemed to show that there was a sudden rush of noxious fumes and the borough surveyor alleged that a firm in the town turned hydrochloric acid into the sewer on the morning of the accident. The verdict was "Death from suffocation caused by gas." There was no blame attached to the corporation or its servants. Great admiration of the conduct of Stockton was expressed and the coroner was asked to recommend him to the Royal Humane Society for reward. The men Baxter and Mitchell, the former of whom lost his life, were eulogised for their bravery in attempting a rescue. Such "accidents" as this just related ought to occur much less frequently than they do. The dangers of the sewers are known but no care is usually taken to ascertain if they are free from noxious gas. But this ought to be ascertained and if foul air is shown to be present it should be driven out before workmen are allowed to go down. The sudden rush of fumes from hydrochloric acid being discharged into sewers could not so easily be guarded against. But is there no better way of disposing of hydrochloric acid than pouring it into the sewers? Mere dilution with water at any rate would prevent fumes arising. The Warrington corporation was declared free from blame and there is nothing more to be said, but the Warrington corporation shares with other corporations the grave responsibility of seeing that those whom they employ run no unnecessary risk.

Human Life a Commercial Asset.

Perhaps the value of human life will come home to the multitude more easily when its money's worth is shown than when it is considered only from the moral and sentimental standpoint. Dr. W. E. Barker, the medical officer of Clitheroe, thinks that "human lives from the commercial standpoint are too valuable to England as a nation to be needlessly frittered away." That they are thus frittered away results, he considers, from the bulk of the populace being "completely ignorant of the most elementary laws of hygiene" and from the prevalence of "the most gross superstitions" as to the causation and treatment of many of the most prevalent diseases. Thousands of lives, he says, and as we all know, are lost annually "from one simple cause alone—ignorance as to the proper feeding of an infant." This is of course an oft-told tale but it should be repeated till the understanding of those who regulate the teaching in our elementary schools is impressed with the terrible results of the present unpractical system. Dr. Barker thinks the teaching of hygiene in elementary schools "would obviate this deplorable state of things." What a commentary this is on the system of education that has been dominant for 30 odd years. Children who will have to work for their living are crammed with the sort of book knowledge which is generally useless as an aid to earning their bread, while practical teaching has been almost ignored. May we hope for better things when people have ceased to quarrel over the 1902 Act?

"Beautiful Oldham."

Æstheticism can flourish even in these northern regions, for the idea of beauty as something worth cultivating seems to have established itself in a town that, without much exaggeration, might be considered as rivalling, if not surpassing, any of those in the manufacturing districts in point of ugliness. But an effort is being made to brighten some of Oldham's dull places with trees and shrubs. School gardens have been instituted at a number of the elementary schools and the "Beautiful Oldham Society" is always on the look out for desolate spots of vacant land which, with the permission of the owner, are planted with shrubs. Some of the railway embankments have been treated in the same way and attempts have been made to brighten slum courts. One court had an insanitary ashpit in the centre which was removed and a little garden made in its place. The boys of the court take care of it and have great pride in their garden. Numerous other instances might be given, for the society is always active. Smoke, as we know too well, is one of the greatest difficulties met with by those who seek to render the grimy northern towns less ugly and more wholesome and the society is doing valuable work in directly and indirectly lessening the smoke nuisance. Of course, the society has been ridiculed, for the idea of beautifying Oldham appeared too absurd for imagination, but the movement has received the flattery of imitation, similar organisations having been founded in several Lancashire and Yorkshire towns and "inquiries have come from places so remote as Newcastle." Something may be hoped for in the increasing use of gas for heating purposes and still more, perhaps, from the use of electricity for the diminution of smoke, but there is still a good deal of prejudice and a clinging to old methods which has gradually to be overcome.

A Child Hero.

It has not been told us by those who have studied the life of the child at what age altruistic courage begins to show itself. The following case, reported in the *Manchester Guardian* of March 9th, seems deserving of notice. At the Blackburn police-court on March 8th the Mayor handed to James Nield, aged five years, the testimonial on vellum of the Society for the Protection of Life from Fire "in recognition of his conspicuous bravery" in rescuing a younger brother (aged two years) when their home was burned down. They were sleeping together, no one else being in the house, when James awoke to find the bed in flames. He dragged his brother down to the kitchen below, where they stayed till the ceiling was burned through. The elder then unfastened the back door and took his brother into an outhouse, where they remained till found by the neighbours. The boy had his wits about him and remained cool in very trying circumstances and his whole conduct is remarkable in a child of five.

March 14th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Cardiff Infirmary.

THE energy displayed during the past few years by the board of management of the Cardiff Infirmary has resulted in placing that institution among the best managed and best equipped in the country. In an appeal made five years ago the board pointed out that certain improvements and extensions were absolutely necessary and the cost of each was set out in some detail. These have at length all been completed at a cost of £17,822, towards which sum about £12,000 have been contributed. There are now 178 beds available for patients, or 50 more than were in use in 1900. In spite, however, of this increased accommodation there are still usually about 200 patients, including 100 children, awaiting admission. At the annual meeting of the governors of the infirmary held on Feb. 28th it was stated that the expenditure in 1904 was £13,130 and the income £11,477. The average daily cost per bed in 1904 was 9·4*d.*, compared with 9·65*d.* in 1903. The number of patients treated in the wards in 1903 was 1919 and in 1904 it was 2144. Of the latter number 1164 were in the surgical wards, 303 in the medical wards, 428 in the ophthalmic wards, and 249 in the gynæcological wards. Owing to the increased and increasing work of the infirmary it has been found necessary to appoint an additional house surgeon so that the resident medical officer is now assisted by a house physician and two house surgeons.

Public Mortuary for Cardiff.

It is nearly five years since the Cardiff corporation decided

to build a public mortuary and obtained the sanction of the Local Government Board to borrow £1500 for the purpose. Delay occurred in obtaining land but the buildings have now been completed. They are situated in a street off the Penarth road and include one room with accommodation for seven bodies and another for three bodies. In the latter there is a large inspection window through which bodies can be viewed for the purpose of identification and by jurymen. There is in connexion with the buildings a well-arranged post-mortem room which is provided with a revolving post-mortem table made of Doulton ware.

Swansea General Hospital.

At the end of last year the board of management of the Swansea Hospital had seriously to consider the financial position of the institution. Compared with three years ago the indoor patients had increased by nearly one-third but the available income had not shown a corresponding expansion. There are 133 beds in the hospital and there are nearly always more than 100 occupied, in some weeks the daily number of patients averaging 125. The board decided to make an appeal for more support and to leave the governors to decide as to the propriety of closing one of the wards. The result of this decision has been that at a meeting held on March 1st the financial report was so satisfactory that it was resolved to keep all the wards open. The working men of the district have been approached and they are to be asked through their trade union lodges to contribute one penny weekly per man to the funds of the hospital. The management of the hospital is by no means extravagant for the average annual cost per bed is only £60. The only adverse criticism which the board of management has had to meet is the statement that patients are admitted for treatment who are well able to pay a general practitioner. This is a matter which might properly be inquired into by the medical men in the town.

A County Medical Officer of Health for Somerset.

The question of appointing a medical officer of health for the county of Somerset is again being discussed and at a meeting of representatives from rural district councils held at Taunton on March 2nd a motion was carried deprecating the appointment of such an official and expressing the opinion that "the present arrangement by which each of the rural and urban districts in the county is under the supervision of a qualified medical officer of health secures a sufficient oversight of the sanitary arrangements of the county from a medical point of view." As a commentary upon this proposition and to illustrate the manner in which some of the Somerset councillors desire to administer the Public Health Acts an account may be given of the proceedings at a special meeting of the Glastonbury town council held to consider the advisability of prosecuting in the case of a boy who, it was alleged, in spite of being warned by the sanitary officers and whilst in the infectious stage of scarlet fever, was delivering turf from house to house. One councillor said he was afraid that if the case was reported in the papers it would have a prejudicial effect upon the business of the town and an alderman thought that the quieter they could keep these things the better. In the end it was decided to prosecute but the medical officer of health was instructed to explain to the magistrates that the council did not desire to press the case.

Hospital Sunday Fund at Bristol.

Up to the present time £1957 have been received as the result of the collections on Hospital Sunday which was recently observed at Bristol. This amount is £221 in excess of the total for 1904 and is £178 beyond the highest previous collection. There have been 396 collections in various places of worship in Bristol and the neighbourhood for the fund this year.

March 13th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Irish Medical Association.

THE report of the gentleman who was employed by the Irish Medical Association to investigate the grievances of medical officers in Ireland has never appeared in full, while the portions of it which have appeared in the public journals have caused much adverse comment, inasmuch as it would appear that they referred to matters out of the range of the terms of reference. It contained criticisms on the Royal Colleges which were entirely uncalled for. Sir William Thomson and Sir Thomas Myles have both written and spoken strongly on the subject, and at a meeting of the council of the Irish Medical Association a motion was adopted dissociating from the council's programme "with no uncertain voice all the offensive statements in the report which refer to the Royal Colleges of Surgeons and Physicians and the members of the profession generally." Mr. R. M. Blake, medical dispensary officer of the Ravensdale district, Co. Louth, member of council of the Irish Medical Association and vice-president of the Poor-law Association of Ireland, has written to the Irish daily papers of March 13th demanding the publication of Surgeon-General G. J. H. Evatt's report on the best means of reorganising the Irish Medical Association. He points out that Surgeon-General Evatt was asked by the Irish Medical Association to prepare such a report, he on his side bargaining that it should be published in its entirety. Mr. Blake says that the ostrich policy will not do and in common with many other members of the association he demands the publication of the full document.

Dublin Sanitary Association.

The annual general meeting of the Dublin Sanitary Association was held on March 2nd in the hall of the Royal Dublin Society, Leinster House. The report which was read noted the fact that infant mortality in Dublin had shown no diminution, while the number of deaths in infants in whose case no cause of death had been certified was still very large. As regards tuberculosis it was stated that voluntary notification had not proved successful—"it must be no notification or compulsory notification" being the words of the report.

Health of Belfast.

Between Jan. 22nd and Feb. 18th 187 cases of zymotic disease have been notified—viz., 55 of scarlet fever, 38 of simple continued fever, 34 of diphtheria, 32 of erysipelas, 20 of typhoid fever, four of puerperal fever, and two each of small-pox and membranous croup. The cases of scarlet fever are very mild and typhoid fever is rapidly diminishing. Diphtheria is increasing and though measles is prevalent the deaths are not numerous. Only two cases of small-pox have occurred during the month. The number of cases of small-pox admitted to Purdysburn Isolation Hospital since the beginning of the outbreak has been 191; of these 168 have been discharged convalescent, nine have died, and 14 remain in hospital. In the reception house for "contacts" 672 persons were admitted during the same period and of these only 12 at present remain. This small-pox outbreak—a preventable disease—has cost the ratepayers of Belfast £5000. The annual death-rate for Belfast was 22 per 1000 for the past four weeks.

Poor-law Reform: the Tramp Nuisance.

Dr. J. S. Darling, medical officer of Lurgan workhouse, has drawn up a report which a committee recommended the guardians to adopt and which stated that tramps might be roughly divided into three classes:—1. The professional tramp who never was and never meant to be anything else, who cohabited with a woman of the same class, and whose children necessarily grew up to the same class. 2. Persons who, having formed drunken, lazy habits, would not remain in any employment and whose tendency was to fall more and more into the first class. 3. Those who were really seeking work and ought to be helped. The problem confronting the State was, he considered, that of compelling the idle class to cease to be parasites on the industrious, while preventing those who had not sunk to complete vice from going lower by providing them with some means of having their habits of industry restored. He suggested that the casual departments in workhouses should be abolished and that the police should inquire of applicants for lodging and sustenance as to their mode of life.

March 14th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Fracture of the Superior Maxilla.

AT the meeting of the Surgical Society held on March 1st M. Sebileau showed a patient who had had his face smashed in by the passage of the wheel of a cart. He was admitted

to hospital with a comminuted fracture of the malar bone and a very peculiar fracture of the superior maxilla consisting in a complete separation of the whole of the alveolar process. For the repair of the damage M. Delair, who is in charge of all matters involving the manufacture of prothetic appliances for M. Sebileau's patients, contrived a splint consisting of an aluminium plate which fitted inside the mouth. The plate was held in position outwardly by a three-branched arrangement taking its bearing from the forehead and the occiput. The result was altogether excellent. The process united firmly and the restoration of the palatine arch was so perfect that no one examining the patient would form any idea of the extent of the injury which he had sustained.

Syphilis and General Paralysis.

At two successive meetings of the Academy of Medicine, on Feb. 22nd and 28th, Professor Fournier read an important paper upon the relations between syphilis and general paralysis and treatment with a view to prevent the onset of the latter. According to Professor Fournier the great majority of cases of general paralysis occur in old cases of syphilis. Other observers, however, consider that syphilis is not the only cause of general paralysis and in view of the fact that cases of syphilis are extremely common they consider that general paralysis is not so common as it would be were it always due to syphilis. Anyway it is an indisputable fact that in nearly every patient affected with general paralysis there is a history of syphilis and, moreover, of syphilis which has been treated improperly. Professor Fournier gave some striking statistics. General paralysis is unknown in the first two or three years of syphilis, it is common between the sixth and the twelfth year, and most common of all about the tenth year. The predisposing cause is syphilis which has not been treated at all or more commonly that which has only been treated for two or three months—i.e., until the disappearance of the secondary symptoms. General paralysis most frequently occurs in patients who have had a slight attack of syphilis and who therefore have only been treated for a short time. Professor Fournier considered that the treatment of syphilis was far from being what it should be. The disease should be treated according to a definite system. For the first two years the treatment should be intensive, then the patient should have a year's rest, then there should be another year's treatment, then two years' rest, and finally another year's treatment. If any one organ appears particularly liable to the effects of the poison of syphilis special attention should be paid to it. No treatment is of any avail for general paralysis when once it is declared and the only thing to do is to prevent the syphilitic poison from bringing about that terrible affection. On March 7th the Academy resumed the discussion and M. Raymond who spoke first said that for his part he agreed with Professor Fournier as to the enormous frequency of syphilis in cases of general paralysis. Heredity, however, played a large part by giving rise to degenerations which prepared the soil, so to speak, for syphilis to bring about general paralysis. This latter complaint was common in emotional persons in whom reflex congestive conditions were rapidly and easily produced. General paralysis had been observed even in children. M. Joffroy, on the other hand, disagreed with Professor Fournier. In his opinion there was no such thing as syphilitic general paralysis. In many countries, for instance, in Bosnia, Tunisia, Ethiopia, India, and Japan, the reports of medical men showed that syphilis attacked an enormous proportion of the population, as much as 80 per cent. in Abyssinia, but general paralysis was unknown. General paralysis, said M. Joffroy, can appear in patients who have undergone a carefully carried out mercurial course and, moreover, he had seen cases in which the mercurial treatment only accelerated the onward march of the paralysis.

A New Sanitary Committee.

The Minister of the Interior has just nominated a new committee called, "Comité Consultatif d'Hygiène Pénitentiaire," to which will be referred all questions of prison hygiene, more particularly those concerning "light labour" (*travaux aux infirmeries*), and prophylactic or hygienic measures to be taken. The committee, which consists of 17 members, includes one inspector-general of the Sanitary Service, four medical men who have already served on committees nominated by the Minister of the Interior, and two medical men in the prison service.

ERRATUM.—In the fifth paragraph of the letter from our Paris correspondent which appeared in THE LANCET of March 11th occurs the phrase, "a solution of the venom is freed from all germs, being both microbicidal and anti-venomous." After the word "germs," the words "the action of radium" should be inserted.

March 14th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Licence Fees of Medical Practitioners in Calcutta.

MEDICAL practitioners in Calcutta are the victims of a peculiar form of local taxation. By the Municipal Act they are divided into two classes: (1) practising surgeon, physician, and dentist, who pay 50 rupees as a licence fee annually; and (2) practising licentiate of medicine and practising apothecary who pay 25 rupees only. It has hitherto been the practice for M.B.'s of the University of Calcutta to pay at the lower rate but the question of their liability having been raised it has been decided that they belong to the first class and that the lower rate is for persons who hold a licence from any body or university to entitle him to practise medicine. As there is no registration and anybody can hold a presumed licence to practise from any self-constituted or other worthless college the legal decision can only be considered of value for the purposes of taxation. That the licentiates of the University should be classed with practitioners who only hold bogus or other unrecognised degrees is a distinct reflection upon their training; on the other hand the difference between M.B. and L.M.S. of the University is hardly sufficient to warrant the former being overtaxed for the whole of his practising life.

Accelerated Promotion in the Indian Medical Service.

It is notified that the promotion of an officer of the Indian Medical Service to the rank of major may be accelerated if he produces while in the rank of captain satisfactory evidence of progress in any branch of knowledge which is likely to increase his efficiency, such as obtaining a higher degree, or a special qualification of repute, or by furnishing proof of having pursued with diligence and advantage serious study of an approved subject. The period of acceleration that may be granted is fixed at six months provisionally.

The New Water Supply for Rangoon.

Rangoon may congratulate itself on having obtained a pure and abundant supply of water. The new Hlawga waterworks consists of a reservoir about seven miles long and from one and a quarter to two miles wide. It is estimated to provide for a population of 650,000, at an average consumption of 25 gallons per head daily. At the present time the consumption is about 40 gallons per head and at this rate the supply is sufficient for 400,000 persons. The new reservoir can be even extended much further at a comparatively trifling cost so that there is no likelihood of continuance of the scares of scarcity of water to which Rangoon has been periodically subjected in the past.

The Plague Epidemic: its Mortality and Continued Extension.

The magnitude of the plague mortality which has been recorded for some weeks past has so come to be an annual occurrence that it seems almost as if familiarity with the terrible death roll had bred contempt for it. For the week ending Feb. 11th there were recorded throughout India 33,660 deaths, as against 36,117 for the week preceding. It is curious that a small decline has been noticed in Bengal, United Provinces, the Punjab, and some other places, but by comparing the course of the disease with that followed last year it is too much to hope that it is more than a temporary set back. The outbreak in Bombay city is growing rapidly, 511 deaths being recorded, as against 395 for the preceding seven days. In Calcutta also the recrudescence is unmistakeable. Other figures of importance are as follows: United Provinces 14,438, as against 15,367; the Punjab 8419, as against 9472; Bengal 4926, as against 5150; Bombay districts 2755, as against 3161; Rajputana 799, as against 603; Hyderabad State 550, as against 526; Central Provinces 438, as against 467; Mysore State 301, as against 346; Burmah 9, as against 1; and Calcutta 106, as against 84. The outbreak at Rangoon is unfortunately increasing. It has been decided to do away with the plague segregation camp and to let the cases be treated either at the contagious diseases hospital or in private houses. This plan

has been adopted to prevent a scare. This is following the experience obtained elsewhere—viz., that it is the regulations which the ignorant people become alarmed at and not really the disease. In fact, the apathy shown when the people are being decimated by cholera, plague, or small-pox is extraordinary, while the mildest regulation which causes any restriction is met by active as well as by passive resistance. It is perhaps too early to describe the outbreak in Madras as recent because the city is by no means safe from a further development. The prompt measures taken are deserving of the highest praise because they were not only energetic and stringent but liberal. There have been from time to time some 60 imported cases of plague in Madras but they have been ferreted out and appropriately dealt with and the disease has not spread. In this instance, however, a small outbreak had actually become established before it was discovered. The patients were immediately removed and the whole village, consisting of 112 huts, was burnt down. The Mauritius emigration depôt close by was probably the source of the mischief, as dead rats showing plague bacilli were discovered close to it. This depôt receives coolies from all parts of the province. Every rat burrow was dug up and every rat found was killed, while a reward of 6 pies (=½d.) per head for every rodent brought in daily bags. The displaced villagers were liberally provided for and the old site has been abandoned. The success of Madras is probably due to the fact that in the neighbourhood of this emigration depôt the population was not thick and there were not many rats, but the thoroughness of the operations was equally necessary to stamp out the disease completely. Had the outbreak occurred in the city there is every likelihood that it would have spread.

Feb. 24th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

The Bubonic Plague.

BUBONIC plague continues in New South Wales and Queensland. At Ulmarra, near Grafton, six cases have proved fatal. Exception has been taken by the Sydney press to the action of the Board of Health in removing plague patients from Ulmarra to the Grafton Hospital. Grafton is a sea port and the usual shipping restrictions are being enforced, ships not being allowed to come to the wharves and no produce is allowed to go from infected districts. Several cases have occurred in Brisbane and it is believed that the infection of the Ulmarra cases can be traced to Brisbane. In Victoria the Board of Health has revised the regulations for the berthing of ships and urged the importance of continued vigorous destruction of rats.

Infectious Disease in Victoria.

The returns presented to the Board of Health of Victoria for the fortnight ending Jan. 14th showed that the number of typhoid fever cases reported was 98, four of which had resulted fatally. In the corresponding period of 1904 there had been eight deaths out of 133 cases. For the metropolitan area there had been 28 cases, resulting in two deaths, as against 43 cases and three deaths in the same fortnight of last year. Diphtheria cases had been recorded as follows for the fortnight ending Jan. 12th:—For the whole State: 1904, 45 cases, 4 deaths; 1905, 52 cases, 1 death; for the metropolitan area: 1904, 15 cases, 2 deaths; 1905, 22 cases, 1 death. For the fortnight ending Jan. 14th the comparison in regard to scarlet fever cases reported in 1904 and 1905 respectively was:—For the whole State: 1904, 36 cases, 1 death; 1905, 18 cases, 1 death; for the metropolitan area: 1904, 29 cases, 1 death; 1905, 7 cases, no deaths.

Vital Statistics of New South Wales.

The Government statistician of New South Wales has published the vital statistics of that State for the year 1904. He says:

There has been a substantial increase in the number of marriages and births and a substantial decrease in the number of deaths. During the year the births numbered 38,657, which is the largest record since 1895, the excess over the previous year being 2731. The increase in the number of births is very perceptible in the last three-quarters of the year, as will be seen from the following statement of the two years 1903 and 1904:—

Births.

Quarter ending—	1903.	1904.
March 31st	8827	8,876
June 30th	9089	9,635
Sept. 30th	9001	10,209
Dec. 31st	9129	9,977

The birth-rate represents an average of 26·77 per 1000 of population compared with 25·28 for the year 1903. Although the increase compared with the previous year has been considerable the rate is still very far below that of ten years ago—namely, 31·75 in 1894 and 38·44 in 1884.

The number of deaths in New South Wales during the past year was 15,410, compared with 16,497 in the previous year. As stated, per 1000 of the population, the deaths in 1904 were 10·66, which is considerably below 11·87, the average for the last ten years. Every quarter of the year, with the exception of the September quarter, is more favourable for 1904 than for the previous year, as will be seen from the following statement:—

Deaths.

Quarter ending—	1903.	1904.
March 31st	4539	3884
June 30th	4040	2917
Sept. 30th	3821	3935
Dec. 31st	4097	3674

The number of marriages celebrated in the State during the year 1904 was 10,429, which is 670 in excess of the previous year and a larger number than was registered in any previous period, the years 1901 and 1902 alone excepted. The number for 1904 give a ratio of 7·21 marriages or 14·42 persons married per 1000 of the population, which compares favourably with the 6·95 and 13·90 which are the averages of the preceding ten years.

Preservatives in Milk.

Prosecutions of milk-vendors for selling milk containing preservatives continue in all the States. At the Glebe court on Jan. 18th a milk distributer doing a very large business was heavily fined for selling milk which contained three grains of formalin to the gallon and added water to 8½ per cent. In two other cases of a similar character fines were inflicted. At the Newtown court several almost identical cases were dealt with.

Hospital Affairs.

An interesting account of the work of all the Sydney hospitals for the year 1904 has just been published. At the five metropolitan hospitals 72,160 patients received treatment distributed as follows:—

Sydney, 32,188; Royal Prince Alfred Hospital, 15,846; St. Vincent's Hospital, 12,835; Children's Hospital, 7561; Coast Hospital, 3730. They were attended to by a staff of 117 doctors, 291 nurses, and 188 other attendants and servants, irrespective of the clerical staffs. The total cost of maintenance of the five hospitals for the year was £56,411. Of this amount the Government contributed about two-thirds, the remainder being secured from public subscriptions, fees from patients, and interest on bequests. Of the total number of persons dealt with, 14,455 were admitted to the wards as indoor patients. The remainder simply called at the institutions on an average of about four times to have their ailments attended to or wounds dressed.

The average stay of each indoor patient was 26 days and they were divided over the institutions as follows: Sydney Hospital, 4549; Coast Hospital, 3730; Prince Alfred Hospital, 3516; St. Vincent's Hospital, 1870; and Children's Hospital, 790. Out of the 14,455 cases treated, 9196 were permanently cured; 2700 were relieved of their suffering; in 559 cases the doctors could afford no relief; while 1005 of the patients died. About a third of the total number of deaths occurred within 24 hours of the admission to the wards. At the close of the year there were 984 persons still in the institutions. With the aid of an anæsthetic 6891 indoor patients underwent one or more operations as follows: in Sydney Hospital, 2744; in Royal Prince Alfred Hospital, 2220; St. Vincent's Hospital, 1181; Coast Hospital, 445; Children's Hospital, 301.

—The annual meeting of the Sydney Hospital was held on Feb. 1st, the State Governor presiding. The report was highly satisfactory and the finances appear to be sound, the income sufficing to meet the expenditure. It was stated that—

Perhaps the highest tribute that could be paid to the members of the honorary medical staff is to record the fact that the total number of official visits paid in the 12 months under review is 5797.

The year's operations total 2856, which is an increase of 228 on those performed in 1903. The results all through show that the highest standard of asepsis is maintained and will bear comparison with results obtained in the hospitals anywhere.

—The Government of Victoria still declines to allow the Kronheimer wing at the Austin Hospital to be opened for the reception of advanced cases of consumption. Instead it proposes to erect a sanatorium at Broadmeadows on an area of 300 acres of Crown land, 500 feet above sea-level and three and a half miles from the Somerton railway station. The objections to this proposal are the want of a proper water-supply and the distance of the site (about 13 miles) from the metropolis. The Premier also proposes to establish an epileptic colony on the same site.—Trouble has occurred at the Ararat Hospital (Victoria) owing to a proposal of the

committee to allow the resident medical officer private practice. The honorary medical officers objected and as the committee persisted the honorary staff resigned. The committee has now requested the Chief Secretary to permit the medical superintendent and medical officer of the Ararat Hospital for Insane to visit the hospital and to administer anæsthetics when requested by the resident medical officer.

Charge of Perjury against a Medical Man; Case withdrawn.

The case adjourned from last month in which Mr. Paris Nesbit, K.C., of Adelaide, proceeded against Dr. R. E. Schlesinger of St. Kilda for perjury in signing a lunacy certificate, was resumed at the St. Kilda court on Feb. 1st. After recalling a witness Mr. Nesbit said that he had decided to proceed no further with the case as he would inflict great pain on a lady whose name had been mentioned in the proceedings and that he had attained his object by the publicity given to the methods of medical men. The police magistrate said that the only evidence touching the matter was that given by Mr. Nesbit himself and that there was nothing in the evidence to justify a committal.

Obituary.

Dr. Thomas Harrison of Granville, New South Wales, died at the age of 53 years, from spinal meningitis. He had been practising in the district for 11 years and was very popular. He was medical officer to the various local friendly and benefit societies and was a prominent member of the Masonic fraternity.—Mr. Ralph Hodgson died very suddenly at Neutral Bay, at the age of 50 years. He was a son of the late Captain C. G. Hodgson of the Grenadier Guards. Besides his active practice Mr. Hodgson took a great interest in many outside affairs. He was a marine motorist, a great chess player, and president of the Sydney School of Arts Chess Club. He was also a politician and an active member of the Reform League.—Mr. J. Harris Lawrence of Port Arlington, Victoria, was found dead in his surgery on Jan. 16th and at the inquest was found to have committed suicide by narcotic poisoning. He was 49 years old and came to the district last November from Bath where he has left a widow and five children and where his father and brother are engaged in medical practice.

Feb. 7th.

Obituary.

EDWARD ATKINSON, M.R.C.S. ENG., L.S.A., F.L.S.

Mr. Edward Atkinson, one of the oldest and best esteemed members of the profession in Yorkshire, died at Harrogate on March 1st at the age of 75 years. His father was Mr. John Atkinson, solicitor, of Leeds; his mother was the daughter of the second William Hey and grand-daughter of the more famous William Hey, F.R.S. He was educated at Leeds Grammar School and in his "teens" went to sea for some time. He then became a medical student at King's College and enjoyed the great privilege of being "house pupil" to Sir William Bowman. Shortly after his appointment as house surgeon at King's College Hospital there was a demand for some young surgeons to go out to the Crimea in consequence of the lamentable breakdown of the Army Medical Service and he was one of the chosen band, together with Mr. Hulke, Sir Spencer Wells, Mr. Christopher Heath, and others. He was attached to the hospital at Scutari where Florence Nightingale was working. In 1855 he became assistant surgeon at the British Civil Hospital at Smyrna and in 1856 surgeon to the English Hospital and the Prussian Deaconesses' Hospital at Jerusalem. Returning to Leeds in 1860 he entered into partnership with his uncle William and his cousin Samuel Hey. Mr. Atkinson was an ardent naturalist and lectured for some years on botany at the Leeds School of Medicine, where he was subsequently one of the lecturers on surgery, such changes of subject being not uncommon in those days. He served on the staff of the Leeds Public Dispensary and was surgeon to the Leeds Infirmary from 1884 to 1894, when he became consulting surgeon. He was president of the Leeds and West Riding Medico-Chirurgical Society in 1887 and of the Leeds Philosophical and Literary Society in 1885–86, to which society he was also honorary curator in zoology, and was one of the original members of the Leeds Priestley Club. He also rendered 30 years of service to the St. John Ambulance Association in Leeds and district and he was an honorary associate of the Order of St. John of Jerusalem. He made various contributions to literature both on biological and medical subjects.

Mr. Atkinson's students, of whom the writer of this obituary notice is one, remember him with very kindly feelings. A gentleman of the old school, cultured and broad-minded, a courteous and genial teacher, friend, and colleague, always ready to talk of his eastern life and travels and of the natural sciences in which he took so much interest, his loss is mourned by many to-day. He was buried at Silverdale on Morecambe Bay by the side of one of his sons who was drowned at this place in 1872. He leaves a widow and eight sons, the eldest of whom is Mr. F. E. Atkinson, medical officer of health of the Craven combined district.

JOHN FRANCIS SCOTT FOWLER, M.B., C.M. ABERD.

THE death occurred on March 3rd, at Georgetown, British Guiana, of Dr. J. F. S. Fowler, surgeon at the Colonial Hospital there. Dr. Fowler was born in St. Helena 40 years ago. He received his professional training at the University of Aberdeen, where he graduated M.B., C.M. in 1885. He was married to a daughter of Mr. David Sinclair of Aultens.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Adolf Bastian, professor of ethnology in the University of Berlin, at Trinidad, whither he had gone in pursuit of his anthropological studies. He was the founder of a great popular museum in Berlin and although nearly 80 years of age he never ceased to take the keenest interest in it. He was a man of marvellous industry and of encyclopædic knowledge.—Dr. Pasquale Penta, *privat-docent* of mental diseases in the University of Naples.—Professor Andrei Vassilyevitch Chodin, who occupied the chair of ophthalmology in the University of Kieff, and for 20 years edited the *Ophthalmological Gazette*.

Medical News.

TRINITY COLLEGE, DUBLIN.—At the final examination in medicine held in Hilary term the following candidates were successful:—

Eva J. Jellett, William J. Powell, Charles R. M. Morris, Robert Magill, William Hassard, William R. Galwey, William F. Samuels, John Murdoch, Henry E. M'Cready, and Cecil Scaife.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bonn:* Dr. Grube has been recognised as *privat-docent* of Physiology. Dr. Ribbert of Göttingen has accepted the invitation to the chair of Pathological Anatomy, together with the direction of the Pathological Institute.—*Breslau:* Dr. Ulrich Gerhardt of Würzburg has been recognised as *privat-docent* of Zoology and Dr. Schroeder as *privat-docent* of Psychiatry.—*Budapest:* Dr. P. Kuzmik, *privat-docent* of Surgery, has been promoted to an Extraordinary Professorship.—*Giessen:* Dr. Brüning has been recognised as *privat-docent* of Surgery.—*Göttingen:* Dr. Max Borst of Cologne has been offered the chair of Pathological Anatomy in succession to Dr. Ribbert.—*Greifswald:* Dr. Wittmaak has been recognised as *privat-docent* of Otology.—*Marburg:* Dr. Schridde has been recognised as *privat-docent* of Medicine.—*Odessa:* Dr. Bukoïemski has been promoted to the chair of Gynæcology.—*Padua:* Dr. Domenico Taddei has been recognised as *privat-docent* of External Pathology.—*Pavia:* Dr. Rosario Traina of Bologna has been recognised as *privat-docent* of Pathological Anatomy.—*Prague (German University):* Dr. Rudolf Fick of Leipsic has been offered the chair of Anatomy in succession to Dr. Rabl who goes to Leipsic.—*Rome:* Dr. Alesso Nazari has been recognised as *privat-docent* of Pathological Anatomy.—*Tomsk:* Dr. S. Lobanoff of St. Petersburg has been appointed to the chair of Ophthalmology, in succession to Professor Erophéieff, resigned.—*Turin:* Dr. Romeo Mongardi has been recognised as *privat-docent* of Otology and Laryngology.—*Zürich:* A professorship of physical methods of treatment is being established; also an institute where baths, electro-therapy, massage, gymnastics, &c., will be carried on.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.—Mr. R. T. Newstead, who for several years has acted as external examiner in entomology in the University of Edinburgh, having previously been assistant to the famous entomologist, the late Miss Eleanor Ormerod, has been appointed lecturer in economic entomology and parasitology in the Liverpool School of Tropical Medicine.

BRISTOL MEDICAL MISSION.—The annual meeting of the friends of this institution was held on Feb. 28th. The medical report stated that during 1904 about 9000 cases had been treated. 2154 visits had been paid to patients at their own homes and there were 26,728 attendances at the dispensary. The financial statement showed an unfavourable balance of £14.

CHORLEY AND DISTRICT MEDICAL SOCIETY.—A meeting of medical men was held in the Shepherds' Hall, Chorley, on March 2nd, at which the following motions were proposed and carried unanimously:—

(1) That a society be formed for the discussion of subjects interesting to the profession from the professional and social standpoints; (2) that the society be called the Chorley and District Medical Society; (3) that the president for this year be Dr. T. W. Jackson; (4) that the secretary and treasurer for this year be Mr. J. W. Maskell; (5) that meetings be held on the first Thursday of each month at 9 P.M.; (6) that the annual subscription be 5s.; and (7) that the house surgeon *pro tem.* of the Rawcliffe Hospital be an honorary member.

THE UNIVERSITY OF LONDON AND TROPICAL MEDICINE.—In response to petitions presented by the London School of Tropical Medicine in February, 1904, the Senate of the University of London has decided to institute a sixth branch of study—viz., tropical medicine—in which candidates may be examined for the M.D. degree and has admitted the London School of Tropical Medicine as a school of the University in the subject of tropical medicine. The University of the metropolis of the empire has thus recognised its imperial character and has brought itself into line with Cambridge and other universities in regard to the importance of the health of Europeans and natives in the great tropical dependencies of the nation. These facts will be emphasised at the banquet, over which Mr. Chamberlain will preside, on behalf of the London School of Tropical Medicine on May 10th.

PRUDENTIAL ASSURANCE COMPANY.—The fifty-sixth annual report of this company now lies before us. One of the first things noticeable is that in the industrial branch for the year ending Dec. 31st, 1904, the medical fees paid amounted to but £51,738 3*s.* 10*d.*, against £55,875 1*s.* 9*d.* for the previous year. This looks as if the medical profession has not received so much this year by the sum of £4136 17*s.* 11*d.*, but wherefore we know not. Certainly in this branch the company has added 310 more agents and the number of policies in this branch has increased by 286,378. Taking the ordinary and the industrial branches together the number of deaths during the year was 240,154, against 217,450 in the previous year. The premiums received during the year amounted to £9,948,351—an increase of £286,941 over the year 1903, and the assets on Dec. 31st, 1904, were valued at £55,359,505, being an increase of £4,142,128 over those of 1903. Ten years ago the assets of the company in both branches amounted to but £21,213,805 and ten years before that the company was proud to advertise that "the invested assets exceed four and a half millions."

TRAINED NURSES' ANNUITY FUND.—The occupation of a nurse in many cases involves much hard work and anxiety, while those who attend private patients have in addition to reckon with occasional want of employment. Increasing years or any form of ill-health seriously interferes with a nurse's prospects and although there are a few excellent institutions which render aid in such circumstances many nurses are for various reasons unable to avail themselves of it. To meet such cases the Trained Nurses' Annuity Fund, of which H.R.H. Princess Christian is now president, was instituted in 1874 and at present grants annuities of £17 each to worn-out nurses. Candidates for election as annuitants must have had at least three years' training and 15 years' nursing, must have attained the age of 50 years, and must be more or less incapacitated for work. The council in appealing for public support claims that no other society meets the needs of the cases which this fund assists. The treasurers of the fund are Messrs. Coutts and Co., bankers, Strand, London, W.C., and the secretary's office is at 73, Cheapside, E.C.

UNIVERSITY OF CAMBRIDGE.—Mr. T. S. P. Strangeways of St. John's College has been appointed the first Huddersfield Lecturer in Special Pathology on the new foundation recently established in the University.

REPORT OF THE COMMITTEE ON VACCINATION EXPENSES.—The report of the Departmental Committee of the Local Government Board upon the question of vaccination expenses has just been presented to Parliament and we hope in a future issue to comment fully thereon.

HEALTH OF BARNSTAPLE.—Mr. J. R. Harper, the medical officer of health of Barnstaple (Devon), in his annual report for 1904, which has just been issued, states that the estimated population of the town was 14,258. The birth-rate and the death-rate were respectively 22·72 and 15·42 per 1000, the death-rate being the lowest for some years. The infantile mortality was at the high level of 160·49 per 1000 births.

ROYAL DENTAL HOSPITAL, LEICESTER-SQUARE.—The annual general meeting of governors was held at the hospital on March 14th, Mr. John Tweedy, President of the Royal College of Surgeons of England, being in the chair. After the formal business of the meeting had been disposed of Mr. Tweedy gave an address to the governors. He said that during the past year the number of cases treated in the hospital amounted to nearly 100,000 and of these in nearly 42,000 anæsthetics were administered. The saving of pain and suffering which these figures suggested could not be calculated. But these figures implied something more than the mere avoidance of pain and shock. The knowledge that a patient was not suffering gave greater freedom of action to the surgeon and added to the thoroughness and efficiency of his endeavours. Exemption from physical suffering could not, however, always be secured without incurring some incidental risk. It was therefore gratifying to know that the immunity to pain afforded by anæsthesia was secured with perfect safety. Not a single life was jeopardised by the use of anæsthetics and that was an unequivocal testimony to the care and skill of those who were intrusted with their administration. He was impressed by the special provision made at the hospital for the care and treatment of the teeth of children. It would be impossible to over-estimate the value and importance of that department. Last year an interdepartmental committee inquired into the alleged physical deterioration of the people of these islands. That inquiry had its inception in a memorandum drawn up by the then Director-General of the Army Medical Service on the physical unfitness for military service of a large proportion of those who offered themselves for enlistment. In the year 1902 no less than 40 per cent. of those who offered themselves as recruits were rejected on account of decay or loss of teeth. That fact had a grave significance; there was perhaps no single condition more inimical to physical well-being, especially in adolescence, than defect or disease of the teeth. And physical well-being was no small factor in moral well-being. It was certain that much of the loss and decay to which he had referred would have been prevented by the exercise of intelligent care and forethought. Institutions such as the Royal Dental Hospital did a great national service by impressing upon the community, and especially upon the poorer classes, the necessity of bestowing greater attention on the care and cleanliness of the mouth and the teeth. But such an institution was not only an agency for the dissemination of useful hygienic information and for the relief of actual suffering, it was also a centre for the improvement of dental skill and knowledge and a school for the training of practitioners may be as important as a hospital for the treatment of those who seek for relief. As hospitals the benefits they conferred, great though they might be, were limited to the patients themselves. But as schools their benefits were indefinitely multiplied and ultimately reached the whole community. For that reason such institutions were entitled to liberal support from every section of society. Hospitals, moreover, subserved a higher ethical purpose. Much of the work done within their walls was voluntary, and the spirit which prompted members of the medical and dental professions to undertake those self-imposed and often self-sacrificing labours reacted upon the character of those who rendered the services and those

who received them. Medical charity engendered mutual trust between patient and practitioner and helped to establish between them relations of the best kind. Thanks to the voluntary principle a value was set upon work done in and for itself without any consideration of material recompense. The first and only consideration was the character of the service rendered and the virtue of the work performed; the only reward thought of or desired was the reward of a good conscience and the satisfaction which good work well done always afforded.

MILLER *v.* MILLER AND FOWLER: A CONGRATULATORY DINNER TO DR. C. O. FOWLER.—It is proposed to entertain Dr. Fowler at a dinner to be held in about a month's time in recognition of his complete exoneration from the disgraceful charges brought against him in recent divorce proceedings. A meeting of the medical profession of Croydon and district will be held at the Public Hall, George-street, Croydon, on Monday evening next, March 20th, at 8.30, to make all necessary arrangements. Communications should be addressed to Mr. C. M. Fegen, Town Hall, Croydon.

MEDICAL CONFERENCE ON THE TEACHING OF HYGIENE AND TEMPERANCE.—The medical conference which has been arranged to take place at the Examination Hall, Victoria Embankment, W.C., on Friday next, March 24th, at 5 P.M., will be an important meeting. It has for its main purpose the consideration of the value and the desirability of the teaching of hygiene and temperance in the schools of the country. The medical profession has been taking keen interest in the subject, as is evidenced by the fact that no less than 14,718 of its members last year signed the petition in favour of such teaching being made compulsory. It is desirable that all advance on this line should be on thoroughly sound principles and it is therefore opportune that such a conference has been arranged in order that the profession in London may have a further consideration of the matter. Sir William H. Broadbent will occupy the chair and Sir Victor Horsley will state the present position of the scheme in reference to the teaching of hygiene and temperance in schools. He will be followed by Dr. Robert Jones who will draw attention to the report of the Interdepartmental Committee on Physical Deterioration in so far as it deals with the matter. Sir Thomas Barlow will indicate the present position of the profession in relation to alcohol, and Mr. W. McAdam Eccles will introduce the question of the pharmacological and toxic properties of alcohol and how they might be more fully taught in the medical schools with advantage to the nation. At 5.45 discussion will be invited and we understand that Dr. William Collier, Dr. F. W. Mott, Mr. A. Pearce Gould, and others may take part in it. The meeting is to terminate at 6.30 P.M.

UNIVERSITY OF LEEDS.—A meeting of the court was held on March 8th when it was decided that the medical degrees shall be Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.). Provision was made for the exemption from examinations and courses of study of students of the Yorkshire College or the Victoria University of Manchester, in order that students may be at no disadvantage in consequence of the changes which have recently taken place. The following recommendations of the Senate as to *ad eundem* degrees were adopted:—

I. As to conferment of *ad eundem* degrees on students who have attended full courses of study at the Yorkshire College and have graduated at various universities but who have not been admitted to the College Associateship: (*a*) That graduates of the Victoria University be offered the same degrees in the University of Leeds as those which they have received from the Victoria University; (*b*) that graduates in medicine of other universities be admissible on application to the M.B. degree of the University of Leeds; (*c*) that applications from other university graduates who have been students of the Yorkshire College be considered on their merits.

II. As to Associates of the Yorkshire College: (*a*) That graduates of the Victoria University be offered the same degrees in the University of Leeds as those which they have received from the Victoria University; (*b*) that graduates of other universities be offered the degree of Bachelor in this University in the faculties in which they graduated elsewhere; (*c*) that the question of the admission to degrees of Associates *honoris causâ* be deferred.

It was also decided that all persons admitted to degrees of the University of Leeds under the foregoing conditions shall be admissible as life members of convocation and also that no graduate so admitted to a degree shall be precluded from proceeding in the University of Leeds to a higher degree in his particular faculty. It was also decided to confer the honorary degree of M.Sc. upon members of the staff of the Leeds Infirmary who are also members of the Faculty of Medicine in the University. The Council was authorised to grant to any professor of the University or to any lecturer who is the head of any department in the University a degree not higher than that of Master of the Faculty in which he has graduated, or in the case of a professor or lecturer holding no degree, such degree not higher than that of Master as the Council may determine. The Council was also authorised, if it thought fit, to grant to any other officer of the University such degree not higher than that of Master as it might determine, but no such degree shall be conferred until a report thereon has been received from the Senate.

UNIVERSITY OF LONDON: FACULTY OF MEDICINE.—A meeting of the Faculty will be held at 5 P.M. on Friday, March 24th, at the University. The Faculty will elect a Senator in place of Sir Cooper Perry who is unwilling to accept nomination for re-election. The Dean will make a statement as to the progress of the Institute of Medical Sciences scheme and also on a matter connected with the visit of British physicians and surgeons to Paris in May next. Dr. Cabert has given notice of motion for a committee to consider a plan of retirement for members of the boards of studies.

THE SOCIETY OF ANÆSTHETISTS.—The following officers have been selected for next session:—President: Mr. Edgar Willett. Vice-President: Mr. W. Tyrrell. Treasurer: Dr. R. J. Probyn-Williams. Secretaries: Mr. H. C. Crouch and Dr. J. Blumfeld. Auditors: Dr. N. W. Bourns and Dr. G. A. H. Barton. Council: The officers and Mrs. F. M. D. Berry, Mr. C. Carter Braine, and Dr. W. J. McCardie.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Vaccination.

THE vaccination question has been unusually prominent in these last few days. Both the Lords and the Commons have had their attention directed to different aspects of the matter and in addition there has been presented at last the report of the Departmental Committee on Vaccination Expenses. This committee was appointed in 1903 by the Local Government Board to consider whether any alteration should be made with regard to the remuneration, costs, and expenses of public vaccinators. In its report the view is expressed that the fees paid for primary vaccination might be reduced without any diminution in the efficiency which has been attained under the present system and without any injustice to the public vaccinators if the provisions of the Vaccination Orders were made more elastic so as to facilitate the adoption of special arrangements and to admit of certain modifications in the duties and status of the public vaccinators. The extent of a parent's power to require the attendance at his home of a public vaccinator to vaccinate his child might, the committee thinks, without hardship be considerably curtailed. The committee also states that in its opinion the maximum fees may be fairly and reasonably fixed at the following amounts: 2*s.* 6*d.* for every case of successful primary vaccination performed elsewhere than at the home of the child or person vaccinated, 3*s.* for every case of primary vaccination performed at the home of the child within one mile from the public vaccinator's residence, 4*s.* for every case of successful primary vaccination performed at the home of the child over one mile and under two miles from the public vaccinator's residence, and 5*s.* for every case of successful primary vaccination performed at the home of the child over two miles from such residence. Where journeys of over three miles have to be made a special fee should be arranged between the authorities. No change is recommended in the mode of remuneration of vaccination officers or in the minimum fees to be paid to them in districts where there is no serious opposition to the enforcement of the Vaccination Act, but where there is such opposition it is proposed that the fees of these officers should be fixed at such an amount as would give them approximately the same remuneration as they would receive in a similar district where opposition to vaccination did not prevail.

Smoking among Juveniles.

Dr. Macnamara is promoting a Bill founded on the recommendation of the Committee on Physical Deterioration that legislation should be introduced to prohibit the sale of tobacco and cigarettes to children under a certain age. Briefly stated, the Bill provides that no person shall sell, give, or supply tobacco in any form to, or for the use of, any person under the age of 16 years, and the penalty for a first offence is a fine of 20*s.* and for any subsequent offence 40*s.*, but after a third conviction the offending tobacconist may lose his licence. Among the supporters of the proposal are Mr. Lloyd-George, Dr. J. G. Shipman, Mr. Churchill, Sir John Gorst, Mr. Burns, Mr. Cathcart Wason, Major Seely, and Mr. Lambert.

Underfed School Children.

When the second reading of the Scotch Education Bill is reached Mr. Henderson will move as an amendment: "That this House declines to give its approval to the Bill on the ground that it contains no provision whereby the education authorities shall insure that every child under compulsory attendance at the schools in its area shall receive proper nourishment before being subjected to mental or physical instruction."

Sanitary Inspection of Schools.

It is of some interest to note that in the new Scotch Education Bill the Government proposes to put the sanitary inspection of the schools under the ordinary local sanitary authorities—the medical officer of health and the sanitary inspector.

HOUSE OF LORDS.

FRIDAY, MARCH 10TH.

The Revaccination of School Children.

The Duke of NORTHUMBERLAND asked His Majesty's Government whether it was its intention to introduce a Bill this session for the promotion of the revaccination of children at school age. He said that he asked the question because it appeared to him that the attitude which the Government assumed towards this subject had undergone a change and it was desirable to know what were its intentions. It would be within their lordships' recollection that the Vaccination Bill when it was passed through Parliament in 1893 received some strong criticism because it did not provide for revaccination. Lord Lister in particular made a very strong protest on that ground. Lord Harris then told them that it would be impossible to introduce the principle that year but that the Government was prepared to consider whether it was possible to bring in a Bill to encourage revaccination the next year. That, of course, was not a promise to introduce a Bill the next year. Governments did not, as a rule, in the month of August promise to introduce measures the following session. But surely it was a promise that the matter would receive consideration. Last year, when he had the honour of moving the second reading of his Revaccination Bill, the Secretary of State for Foreign Affairs (the Marquis of Lansdowne) said that the Royal Commission thought it undesirable to have resort to compulsory revaccination because it conceived—and Lord Lansdowne could not help thinking that it rightly conceived—that compulsory revaccination would add to the volume of the hostility to vaccination which had to be encountered, but it had done all in its power to encourage revaccination. Considering that the Royal Commission reported in 1896, he wanted to know how it was that Lord Harris having in 1898 said on the authority of the Government that it would consider whether it could not bring in a measure to encourage revaccination, the Government in 1904 fell back on the Royal Commission report which in 1898, they knew very well, said that revaccination was, if not undesirable, inexpedient. He would like to call attention to the effect which this hanging up of the discussion had had. Certain figures had been handed to him which he believed to be correct and they showed that from February, 1904, to February, 1905, in 315 urban districts there were 7704 cases of small-pox and of these 7469 were in 169 districts where vaccination was very unpopular. That was not the only evil. This was largely a question of pounds, shillings, and pence. All the towns of England were being put to great expense to provide isolation hospitals, the cost of which would be unnecessary if revaccination were largely practised. In Germany, where vaccination was carried out thoroughly, isolation hospitals had almost gone into disuse. But here were counties being saddled with great expense for hospitals which might not be used for years, great inconvenience being caused to everybody by the process. The local authority paid very highly for the sites for those hospitals and of course the surrounding land was necessarily deteriorated in value. All the difficulties and all the cost arose simply and solely because Parliament had not promoted or encouraged revaccination. Lord Lansdowne last year suggested that if they made revaccination compulsory it would be extremely unpopular. So long as they had a conscientious objection to vaccination it could not be said that vaccination was satisfactory. He would ask whether the Government had come to the conclusion that it was impossible to encourage revaccination by any measure which it might introduce.

Lord KENYON, in reply, said that Lord Lansdowne last year spoke in favour of the Bill which the Duke of Northumberland proposed and gave no opposition to it. The Government was in favour of encouraging revaccination as far as it could, but it relied on the report of the Commission which sat in 1896 and said it conceived that compulsory revaccination was not practicable. In the first place it thought there were practical difficulties in the way. Possibly those difficulties had been overcome in Germany, but it did not see its way to overcome them in this country and further it was afraid of incurring greater hostility to vaccination throughout the land. Lord Harris no doubt did say that the Government would consider the practicability of bringing in a Bill and no doubt the Government did consider it, but it came to the conclusion that it was not practicable. The noble duke had said that there was a considerable amount of small-pox in the country but the figures still showed a gradual diminution since the Act of 1898. It was hoped that the diminution might go on and that by degrees small-pox might die out of the land; but as long as the conscientious objector was allowed to exist, and they did not see how they could get rid of him, it was impossible to introduce a full measure of compulsory vaccination or revaccination. On behalf of the Government he must say that its reply to the noble duke must be in the negative.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 8TH.

Free Meals for Destitute Children.

Mr. BALFOUR informed Mr. Keir Hardie that he had received no information which would confirm the statement of the honourable Member that the provision of free meals for destitute children in Manchester came to an end on Friday last for lack of funds. He was advised that the statement referred to one fund and not to all the resources which might be drawn upon for this purpose. The Lord Mayor's fund for free meals to children at Leeds was raised to meet exceptional distress. When that fund became exhausted a fortnight ago the situation was considered by a committee representing all parts of the city and the Lord Mayor decided that the distress was no longer exceptional and that it could be met by ordinary charitable agencies. It was resolved to discontinue the fund and no one on the committee demurred to this policy.—Mr. KEIR HARDIE asked whether the right honourable gentleman would not reconsider his decision not to introduce a Bill enabling local authorities to provide free meals for destitute children out of the rates.—Mr. BALFOUR: I am not prepared to give any pledge such as that which the honourable gentleman asks for.—Dr. MACNAMARA asked whether the right honourable gentleman would not reconsider his decision if representations were made to him showing the extreme urgency of the problem.—Mr. BALFOUR: I would submit to honourable Members that their observations should be primarily directed to the Board of Education or to the Local Government Board rather than to myself.—Dr. MACNAMARA: The Board of Education has definitely refused to adopt the recommendation of the Committee on Physical Deterioration to the effect that local education authorities should be empowered out of the funds at their disposal to provide meals for hungry children.—Mr. BALFOUR: I cannot give any pledge that we will deal with the report of the committee in this particular in the manner proposed.—Sir JOHN GORST: Would the Prime Minister be disposed to consider favourably a proposal to refer the report of the Committee on Physical Deterioration to a select committee of this House?—Mr. BALFOUR: I shall be very glad to consider that proposal but I cannot give a definite answer at the present time. If my right honourable friend will put down a question for this day week I shall consider it.

Vaccination Exemption Certificates.

Mr. WEIR asked the Home Secretary whether he was aware that on April 5th last Mr. Philip J. Cook applied before Mr. Fordham at the North London police court for a certificate of exemption from vaccination for his infant child and that although he explained that a certificate had been granted to him at that court on a former occasion for another child the magistrate declined to grant a certificate; that application was renewed a few days later before Mr. Cluer who refused on the ground that it was extremely undesirable that he should overrule his colleague's ruling; and as an appeal at the Thames police court before Mr. Dickenson, who had granted the first certificate, failed on account of the applicant not being resident within the district of the court, would the Secretary of State consider the advisability of directing the attention of metropolitan police magistrates to the remarks made by the Lord Chief Justice on July 27th last when addressing the grand jury at Birmingham relative to the principle on which the Act ought to be administered, especially having regard to the fact that in the present instance the applicant was eventually forced to have his second child vaccinated under the pressure of a summons, although he still persisted in the same conscientious objections which secured him a certificate of exemption for his first child.—Mr. AKERS-DOUGLAS answered: Mr. Cook wrote to me on Feb. 9th and requested my intervention in this matter. The granting of certificates of exemption from vaccination is, however, placed by the statute within the discretion of the magistrates and I have no authority to interfere with that discretion. The attention of all the metropolitan police magistrates was called by a circular issued in September last to the remarks of the Lord Chief Justice at the Birmingham summer assizes.—Mr. GIBSON BOWLES: Will the right honourable gentleman lay on the table a copy of the memorandum issued by the Home Office?—Mr. AKERS-DOUGLAS: I see no objection to that.

Vaccination Fees.

Mr. RUNCIMAN asked the President of the Local Government Board when the report of the Departmental Committee on Vaccination Fees would be presented to Parliament and when a revision of the fees in question would come into force.—Mr. LONG replied: I propose to present the report at once. The subject to which it refers is receiving my attention but I cannot say when a new Order will be issued. I may, however, observe that effect could not be given to some of the recommendations contained in it without legislation.

THURSDAY, MARCH 9TH.

The Case of Nurse Holland.

Mr. SLOAN asked the Attorney-General for Ireland whether he could now state the result of the Government inquiry into the case of Nurse Holland, who was reported by the Inspectors of Lunacy as entirely unfitted for her position, having regard to her faithlessness in the discharge of her duties and the untrustworthiness of her statements.—Mr. ATKINSON replied: I have carefully considered this case. The appointment and dismissal of asylum nurses are vested solely in the committee of management of the asylum. The only way in which the Government could intervene would be by withdrawing the capitation grant paid to the Monaghan Asylum under Section 58, Sub-section 2 (c), of the Local Government (Ireland) Act of 1898, on the ground that the asylum is improperly managed. In the present instance the charge preferred by Nurse Holland was found to be false. The action of the committee in deciding to retain her services in the circumstances is much to be regretted, but I do not consider that its action can be held to bring the case within the provisions of the Act to which I have referred.

An Irish Complaint.

Mr. BOLAND asked the Attorney-General for Ireland whether he was aware that a memorial, signed by 17 members of the board of guardians and rural district council of Kenmare, was sent to the Local Government Board on Jan. 30th, assigning reasons why a public inquiry should be held relative to the case of a fever patient named Cottar who died recently in the union; on what grounds the inquiry had been refused; and whether, in view of the charges made against the Rev. Mr. Duggan, Protestant rector of Kilgarvan parish, steps would be taken to hold an inquiry immediately.—Mr. ATKINSON said: Such a memorial has been received. The grounds upon which the memorialists urged the Local Government Board to hold an inquiry on oath were that the Rev. Mr. Duggan had gratuitously afforded medical advice to a poor person named Cottar. As this clergyman is not in any way under the jurisdiction of the Local Government Board it was advised that the matter was not one in which it could intervene. Moreover, there was nothing to show that the reverend gentleman had done anything

illegal or actionable rendering him liable to a penalty under 21 & 22 Vict., Cap. 90, Sec. 40.

FRIDAY, MARCH 10TH.

The Inspection of Meat.

Lord GEORGE HAMILTON asked the Member for North Hunts, as representing the Board of Agriculture, whether his attention had been directed to the absence of uniformity in the various systems of meat inspection now in local operation in England; and whether he would consider the advisability of establishing some system of branding or certificate such as existed in other countries by which butchers and other vendors of meat who have purchased their supplies from Smithfield or some other central market under scientific inspection might be able to associate with the meat so purchased the certificate which passed the meat as sound and free from disease.—Mr. LONG said: My attention has been drawn to the alleged absence of uniformity as regards meat inspection by local authorities in England and I have instructed one of the medical inspectors of my department to make inquiry on the subject. I will give consideration to the suggestion of my noble friend in connexion with the report of the inspector when it is received.

MONDAY, MARCH 13TH.

The Higher Education of Nurses.

Mr. HEALY asked the President of the Board of Trade whether the Board had received an application for a licence to incorporate a society for the higher education of nurses from gentlemen unconnected with medicine or surgery; and, if so, whether the Board still adhered to the view expressed in a letter written by the Board on August 6th, 1891, to Dr. Bedford Fenwick, in which it was stated that it appeared to the Board of Trade that it was not competent to determine the very important question connected with the establishment of a register of nurses, which should be settled before the register can be effectively established; and that, in the circumstances, the Board of Trade was unable to grant the desired licence to the Royal British Nurses Association; and that the Board was convinced that full inquiry (by competent authorities) into all the facts and circumstances of the case, and into the objections that had been raised, should precede any further steps on the part of the Government; and whether, if any change had since taken place in the policy of the Board in dealing with the question of the registration of nurses, he could indicate the nature and grounds of such change.—Mr. GERALD BALFOUR replied: An application has been received by the Board of Trade for a licence to incorporate under Section 23 of the Companies Act, 1867, without the word "limited," a society for the higher education of nurses. The proposed memorandum and articles of association which have been submitted to the Board of Trade are subscribed by seven gentlemen, none of whom are members of the medical or surgical professions, although one is the chairman of a London hospital. The Board of Trade proposes to hear both the applicants and the objectors to the grant of a licence and until after such hearing it is not proposed to come to any decision.

Enteric Fever in Fermanagh.

Mr. EDWARD MITCHELL asked the Attorney-General for Ireland whether he would say what steps, if any, the Local Government Board had taken to insist upon the local authority dealing with the insanitary condition of the village of Derrygonnelly, county Fermanagh; whether he was aware that at present an outbreak of typhoid fever existed and that one death at least had taken place therefrom; and what immediate action the Local Government Board intended to take in the matter.—Mr. ATKINSON said: It is a fact that five cases of enteric fever have occurred in this village and that one of the patients has died. A complaint has been made to the Local Government Board under the fifteenth section of the Public Health (Ireland) Act, 1896, that the sanitary authority has made default in the performance of its duty. The Board has accordingly directed a local inquiry to be held and the rural district council has been so informed.

The Sale of Poisons.

Sir THOMAS DEWAR asked the Secretary of State for the Home Department whether he proposed to introduce legislation this session to regulate the sale of poisons; and whether, in view of the deaths which had occurred through the taking of poisons by misadventure, notably a recent case in which a fatal dose of carbolic acid was administered to a patient under the impression that the bottle contained the prescribed medicine, he would take into consideration the advantage to be derived from a clause directing that all poisons shall be sold in bottles of a distinctive shape, so that the risk of bottles of poison being mistaken for medicine might be reduced to a minimum.—Mr. AKERS-DOUGLAS said: The Lord President of the Council has under his consideration the question of legislation on this subject but I am not in a position to make any statement as to the introduction of a Bill.

Mr. REMNANT asked the President of the Board of Trade whether his attention had been drawn to a recent judgment in the Cardiff county court in which it was revealed that a one-man company incorporated under the Companies Acts could not be punished for any disregard of the poison regulations sanctioned by the Privy Council; and whether, in the public interest, the departmental committee of inquiry on the Companies Acts would be directed to consider and report on this effect of incorporation.—Mr. GERALD BALFOUR replied: My attention has not been called to the recent judgment in the Cardiff county court referred to in the question. The Board of Trade is not prepared to direct the departmental committee of inquiry on the Companies Acts to consider and report on the sale of poisons by one-man or other companies, inasmuch as any amendment of the law in this respect would not be germane to a Companies Bill.

Dr. MACNAMARA asked the Home Secretary whether his attention had been called to the number of deaths which had recently occurred through accidental poisoning; whether he was aware that a locking poison bottle had been recently invented by which at a trifling cost accidental poisoning could be prevented; and, if so, whether he would take steps to compel distributors of carbolic acid and other virulent poisons to refrain from selling poisons except in some kind of locked bottle.—Mr. AKERS-DOUGLAS replied: My attention has been drawn to several recent cases of accidental poisoning and also to several inventions designed to minimise the risk of such accidents. Under the regulations made by the Pharmaceutical Society under Section 1 of the Pharmacy Act, 1868, and approved by the Privy Council, it is at the present time required that all liniments, embrocations, lotions, and liquid disinfectants containing poison must be sold in bottles rendered distinguishable by touch from ordinary medicine bottles, and that each such bottle must bear a label giving notice that its contents are not to be taken internally. The Lord President of the Council is of opinion that it would be undesirable to prescribe the use of any special form of bottle which might give a monopoly to the patentee, and further, that the inconvenience of a locked bottle might not improbably lead careless purchasers to transfer its contents into some ordinary vessel.

The Physical Condition of School Children.

Sir JOHN GORST asked the Secretary of the Board of Education whether the attention of the Board of Education had been directed to the evidence given in December, 1903, by Dr. Eichholz, one of its inspectors, before the Committee on Physical Deterioration, in which he testified that in a school in Lambeth he considered 90 per cent. of the children unable, by reason of their physical condition, to attend to the duties of the school in a proper way; and in many other schools in London and elsewhere he found a considerable, though less, proportion of physical deterioration, and what steps the Board of Education had taken to prevent the waste of public money involved in providing instruction for children thus unfit to receive it.—Sir WILLIAM ANSON said: I have carefully read the evidence referred to and have myself visited the Lambeth school referred to in the question. The right honourable Member is probably aware that there are very wide differences of opinion as to the extent of the evil complained of and the remedies to be applied. A departmental committee has been appointed by the Lord President for the purpose of providing useful and precise information on the subject.

The Registration of Dentist Companies.

Sir JOHN BATTY TUKE asked the President of the Board of Trade whether his attention had been called to the decision of the Master of the Rolls in the High Court of Justice in Ireland (Chancery Division) in the case of the Attorney-General *v.* Appleton and others; and whether the Board of Trade proposed to take any action in reference to that decision with a view to preventing in Great Britain such abuses of the Companies Acts as were disclosed in the course of the proceedings.—Mr. GERALD BALFOUR said: My attention has been called to the decision in the case of the Attorney-General *v.* Appleton. The Board of Trade is at the present moment taking the advice of the law officers of the Crown with regard to the instructions to be given by the Board of Trade to the registrars of joint stock companies in England, Scotland, and Ireland as to the registration of dentist companies.

The Medical Inspectors of the Local Government Board.

Mr. CROOKS asked the President of the Local Government Board whether the medical inspectors of that Board were permitted to accept appointments for pay outside their official duties.—Mr. GRANT LAWSON, who replied, said: A medical inspector is required to devote the whole of his official time to the duties of his office, but this is not intended to interfere with the manner in which he employs the rest of his time or his holidays.

TUESDAY, MARCH 14TH.

Medical Officer for Lewis.

Mr. WEIR asked the Lord Advocate whether he was aware that at a recent meeting of the Lewis district committee it was proposed that a medical officer of health should be appointed for the island of Lewis, and in the event of effect being given to the suggestion would arrangements be made for the new officer to be responsible to the Local Government Board direct and not to the medical officer of health of the county.—The LORD ADVOCATE said: The Board has no information of the meeting referred to and is at present awaiting the action of the district committee with which any arrangements regarding the appointment and its conditions primarily rest.

The Cotter Case.

Mr. BOLAND asked the Attorney-General for Ireland whether, with reference to the application of the rural district councillors of Kenmare for an inquiry into the death of a fever patient named Cotter and to the charges made against the Rev. Mr. Duggan for attending the patient although he was not a qualified medical man, he would state what steps could be taken to prevent such practices in the future; and whether, seeing that the district was rendered liable to an outbreak of fever through the action of a gentleman not medically qualified, he would see that full inquiry was made into the whole circumstances of the case.—Mr. ATKINSON said: I stated in answer to the honourable Member's previous question of Thursday last that upon the information before the Local Government Board the reverend gentleman had not contravened the law. The Board is not aware that there are any grounds for the statement in the second part of the question. No cases of fever have been reported recently from this district other than that of the man Cotter.

Temporary Medical Officers to Irish Prisons.

Mr. DILLON asked the Chief Secretary for Ireland on what grounds the practice had been adopted in recent years of appointing temporary medical officers to Irish prisons instead of appointing permanent medical officers as was formerly the practice.—Mr. ATKINSON, who replied, said: The arrangement referred to has been adopted in the Irish prison service in order to assimilate the system to that previously existing in the Scotch service. The question of pensions is not affected as these officers did not devote their whole time to the service before the introduction of the change and consequently were not eligible for pensions.

Evasions of the Medical and the Dental Acts.

Sir JOHN BATTY TUKE asked the Home Secretary whether he was aware that evasions of the Medical Acts and the Dental Acts to the detriment of the public had been effected under the provisions of the Companies Acts; and, if so, whether he proposed to initiate legislation to preclude the possibility of such evasions being effected in future.—Mr AKERS DOUGLAS said: I am aware of the cases, recently before the courts, to which the honourable Member refers. I am not in a position to make any statement as to legislation, but I may say that the Lord President of the Council has been in communication with the General Medical Council and the Board of Trade on the subject of companies carrying on business as medical men and dentists; and the Board of Trade is, I understand, obtaining the opinion of the law officers of the Crown on the question of the registration of such companies under the Companies Acts.

BOOKS, ETC., RECEIVED.

ADLARD AND SON, Bartholomew Close, E.C.

In Confidence to Boys. By H. Bisseker, M.A., formerly a Public School House-Master. Revised by the Council of the Medical Officers of Schools Association. Price 1s. net.

AMERICAN LARYNGOLOGICAL ASSOCIATION (Dr. James E. Newcomb, Secretary, 118, West Sixty-ninth-street, New York City).

Transactions of the Twenty-sixth Annual Meeting of the American Laryngological Association held at Atlantic City, N.J., June 2nd, 3rd, and 4th, 1904. Price not stated.

BACON, G. W., AND CO., LIMITED, 127, Strand, W.C.

Cold Catching: Cause and Cure. With Golden Rules Index. By G. W. Bacon, F.R.G.S. Revised by W. T. Fernie, M.D. Second edition, revised. Price, limp cloth, 6d. net.; cloth, gilt, 1s. net.

CHAPMAN AND HALL, Limited, London.

Thomas Carlyle: The Man and His Influence. By Percy Warner. Price 1s. net.

CLOWES, WILLIAM, AND SONS, LIMITED, 7, Fleet-street, E.C.

The King's Coroner: Being a Complete Collection of the Statutes relating to the Office, together with a Short History of the Same. By R. Henslowe Wellington, of the Middle Temple and South-Eastern Circuit, Barrister-at-Law, Deputy Coroner for the City and Liberty of Westminster and South-Western Division of the County of London, Member of the Royal College of Surgeons of England, and Licentiate of the Royal College of Physicians of London. Price not stated.

DORAN, WILLIAM J., Printer, Philadelphia.

Transactions of the American Gynecological Society. Volume XXIX. For the year 1904. Price not stated.

Transactions of the American Surgical Association. Volume XXII. Edited by Richard H. Harte, M.D., Recorder of the Association. Price not stated.

FISCHER, GUSTAV, Jena.

Stellt die Bottinische Operation einen Fortschritt in der Behandlung der chronischen Urinretention bei Prostatikern dar? (Aus der chirurgischen Station des städtischen Krankenhauses zu Posen.) Eine Klinische Studie von Prof. Dr. Max Jaffé. Abdruck aus dem Klinischen Jahrbuch. Dreizehnter Band. Price M.2.

Lungenschwindsucht und Nervensystem. Von Dr. F. Jessen, früher Oberarzt am Vereinshospital in Hamburg, jetzt Arzt in Davos. Price M. 2.

GRIFFIN, CHARLES, AND CO., LIMITED, Exeter-street, Strand, W.C.

Foods and Dietaries: A Manual of Clinical Dietetics. By R. W. Burnet, M.D., F.R.C.P. Lond., Senior Physician to the Great Northern Central Hospital, Hon. Physician to H.R.H. the Prince of Wales. Fourth edition. Price 4s.

HIRSCHFELD BROTHERS, LIMITED, 13, Furnival-street, Holborn, E.C.

Hossfeld's New Practical Method for Learning the German Language. By C. Brenkmann. Revised and enlarged by Louis A. Happe, Army Tutor and Instructor in Modern Languages at the Dover Municipal Technical Schools. Price 3s.

Hossfeld's New Practical Method for Learning the Dutch Language. By J. M. Schnitzler, Teacher of Languages and Sworn Translator and Interpreter, Rotterdam. Price 4s.

Hossfeld's Dutch Dialogues and Idiomatic Phrases Indispensable for a Rapid Acquisition and Correct Expression of the Dutch Language. New edition, thoroughly revised by J. M. Schnitzler. Price 1s.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Zur Chirurgie der Ureteren. Klinische und anatomische Untersuchungen. Von Dr. M. Zondek. Price M.2.

Die Wirkungen von Arzneimitteln und Giften auf das Auge. Handbuch für die gesammte ärztliche Praxis. Von Dr. L. Lewin, Professor in Berlin und Dr. H. Guillery, Oberstabsarzt in Cöln. II. Band. Price M.26.

Zeitschrift für Krebsforschung. Herausgegeben vom Komitee für Krebsforschung zu Berlin. Redigiert von Prof. Dr. D. v. Hansemann und Prof. Dr. George Meyer. Dritter Band. Erstes Heft. Price M.7.

König's Lehrbuch der Chirurgie für Aerzte und Studirende. IV. Band. Allgemeine Chirurgie. Zweite Auflage, vollständig neu bearbeitet. Von Dr. Otto Hildebrand, Ord. Professor der Chirurgie, Director der Chirurgischen Universitätsklinik und Poliklinik der Kgl. Charité in Berlin. Price M.21.

KARGER, S., Karlstrasse, 15, Berlin.

Aus der Universitäts-Frauenklinik in Heidelberg. Die physiologischen und pathologischen Beziehungen der weiblichen Sexualorgane zum Tractus intestinalis und besonders zum Magen. Von Dr. Erwin Kehrer, Privat-dozent an der Universität und Assistenzarzt an der Univ.-Frauenklinik in Heidelberg. Price M.5.60.

KING, P. S., AND SON, Orchard House, Westminster.

Infantile Mortality and Infants' Milk Depôts. By G. F. McCleary, M.D., D.P.H., Medical Officer of Health of the Metropolitan Borough of Battersea. Price 6s. net.

LAURIE, T. WERNER, Clifford's Inn, Fleet-street, E.C.

The Courtships of Catherine the Great. By Philip W. Sergeant, B.A., late Scholar of Trinity College, Oxford. Price 10s. 6d. net.

The Complete Bridge Player. By "Cut-Cavendish." Price 2s. 6d. net.

LEHMANN, J. F., Heustrasse, 20, München.

Die Anästhesie in der Aerztlichen Praxis. Von Dr. Max Martin. Price M.1.

Die in meiner Klinik geübte Technik der Gallensteinoperationen mit einem Hinweis auf die Indikationen und die Dauererfolge. Auf Grund eigener, bei 1000 Laparotomien gesammelter Erfahrungen bearbeitet von Prof. Dr. Hans Kehr. Price, paper, M.16.; bound, M.18.

LONGMANS, GREEN, AND CO., 39, Paternoster-row, E.C.

In Watchings Often: Addresses to Nurses and Others. By the Rev. E. E. Holmes, Hon. Canon of Christ Church, Vicar of Sonning, Berks. With a Preface by the Right Rev. the Lord Bishop of Lincoln. Price 2s. 6d.; cloth edition, 3s. 6d.

Recurrent Effusion into the Knee-joint after Injury, with Especial Reference to Internal Derangement, commonly called Slipped Cartilage. An Analysis of 750 Cases. A Clinical Lecture delivered at St. George's Hospital. By Sir William Bennett, K.C.V.O., F.R.C.S. Reprinted, after revision, from THE LANCET. Price 3s. 6d.

MARLBOROUGH, E., AND CO., 51, Old Bailey, E.C.

Greek Self-Taught (Modern), with Phonetic Pronunciation (Thimm's System). By Nicolaos Anastassiou, Bachelier diplômé du Collège Grec de Halki. Price, wrapper, 2s.; cloth, 2s. 6d.

Portuguese Self-Taught (Thimm's System). With Phonetic Pronunciation. By E. da Cunha. Price, wrapper, 2s.; cloth, 2s. 6d.

MASSON ET CIE, 120, Boulevard Saint-Germain, Paris.

Pathologie Générale et Expérimentale. Les Processus Généraux. Tome second. Par MM. A. Chantemesse, Professeur à la Faculté de Médecine de l'Université de Paris, Membre de l'Académie de Médecine, et W. W. Podwyssotsky, Doyen de la Faculté Impériale de Médecine d'Odessa, Professeur de Pathologie Générale à la même Faculté. Price not stated.

METHUEN AND CO., 36, Essex-street, Strand, W.C.

De Profundis. By Oscar Wilde. Price 5s. net.

PROGRÈS MÉDICAL, AUX BUREAUX DU, 14, Rue des Carmes, Paris.

ALCAN, FÉLIX, 108, Boulevard St. Germain, Paris.

Recherches Cliniques et Thérapeutiques sur L'Epilepsie, l'Hystérie et l'Idiotie. Compte-rendu du Service des Enfants Idiots, Épileptiques et Arriérés de Bicêtre pendant l'Année 1903. Par Bourneville, avec la collaboration de J. Boyer, L. Izou, Lemaire, Reine Mauger et (Mlle), Julien Noir, Paul-Boncour. Volume XXIV. Price Fr. 7.

RIVINGTON'S, 34, King-street, Covent-garden, W.C.

Health at School, considered in its Mental, Moral, and Physical Aspects. By Clement Dukes, M.D., B.S. Lond., Physician to Rugby School. Fourth edition, revised, enlarged, and illustrated. Price 10s. 6d. net.

SAFÁR, JOSEF, Schlösselgasse, 22, Wien.

Militärärztliche Publikationen, Nr. 83. Die Infektionskrankheiten rücksichtlich ihrer Verbreitung, Verhütung und Bekämpfung. Kurzgefasstes Lehrbuch für Militärärzte, Sanitätsbeamte und Studierende der Medizin. Von Oberstabsarzt Dr. Ludwig Kamen, ständ. Mitglied des k.u.k. Militär-Sanitäts-Komitees und Lehrer an der militärärztlichen Applikationsschule in Wien. Lieferung I. Price K.1.80 or M.1.50.

STEVENS AND SONS, LIMITED, 119 and 120, Chancery-lane, W.C.

A Scheme for the Promotion of Scientific Research. By Walter B. Priest. Price not stated.

STUDER, A. (C. KABITZSCH), Würzburg.

Beiträge zur Klinik der Tuberkulose. Herausgegeben von Dr. Ludolph Brauer, a.o. Professor an der Universität Marburg. Band III. Heft 3. Einzelpreis M.2.50.

UNIVERSITY OF CHICAGO PRESS, Chicago. (UNWIN, T. FISHER, Paternoster-square, London.)

Studies in General Physiology. By Jacques Loeb, formerly of the Department of Physiology, now Professor of Physiology, in the University of California. (The Decennial Publications, Second Series, Vol. XV., Parts I. and II.) Price £1 11s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

CLAYTON-GREENE, W. H., M.B., B.C. Cantab., F.R.C.S. Eng., has been appointed Surgeon in charge of Out-patients at St. Mary's Hospital.

CONDON, R. P., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Broadford District of the county of Limerick.

COUPLAND, J. A., M.B. Lond., has been appointed Resident Surgical Officer at the Leeds General Infirmary.

CUSCADEN, GEORGE, L.R.C.P. & S. Edin., has been appointed Public Vaccinator for the Metropolitan District, Victoria, Australia.

DAWE, F. SHERWILL, M.D., B.Sc. Lond., has been appointed Casualty Physician to St. Mary's Hospital, London.

DICK, M. I., M.B., B.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Staveley District of the county of Westmorland.

FELDMAN, M., M.R.C.S., L.R.C.P., has been appointed L.C.C. Lecturer in Midwifery to Midwives.

FROST, ALBERT ERNEST, M.B. Melb., has been appointed Acting Health Officer at Townsville, Queensland, *pro tem.*

FRY, PERCY V., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Officer of Health for the Luddenden Foot Urban District Council (Yorks).

GARLICK, J. P., M.B., Ch.B. Vict., has been appointed Assistant House and Visiting Surgeon at the Stockport Infirmary.

GEDDES, JOHN W., M.B., C.M. Edin., has been appointed Medical Superintendent of the Middlesbrough County Borough Asylum.

HUTTON, JOHN ROBERT, M.B., Ch.B. Edin., has been appointed Acting Medical Officer and Acting Health Officer, Queensland, *pro tem.*

LEAF, CECIL H., F.R.C.S. Eng., has been appointed Honorary Surgeon to the Cancer Hospital, London.

LOVE, WILTON WOOD RUSSELL, M.B., M.S. Edin., has been appointed Honorary Pathologist to the Department of Public Health, Queensland, Australia.

MACBRIDE, A., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Newport District of the county of Mayo.

MCCAUL, GEORGE BARTON, M.B., B.Ch., B.A.O. Dub., L.M. Rotunda, has been appointed Resident Obstetric Officer at the Bristol Royal Infirmary.

MCWILLIAMS, HENRY HEBER, L.R.C.P. & S. Edin., has been appointed Officer of Health for the Shire of Springfield, Victoria, Australia.

MADIGAN, J. F., L.R.C.P. & S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Drumcollogher District of the county of Limerick.

MAKINS, G. H., C.B., F.R.C.S. Eng., has been appointed to the Consulting Staff of the Bolingbroke Hospital, Wandsworth-common, S.W.

MATHIESON, G. B., M.B., M.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Doune District of the county of Perth.

MILES, W. E., F.R.C.S. Eng., has been appointed Honorary Surgeon to the Cancer Hospital, London.

MOLLINSON, C. H., M.B., has been appointed Lecturer of Forensic Medicine at the Melbourne University, Australia.

NEWSTEAD, R. T., has been appointed Lecturer in Economic Entomology and Parasitology in the Liverpool School of Tropical Medicine.

NORRIS, W. P., M.D. Melb., has been appointed Chief Medical Officer of the Melbourne Board of Public Health, Victoria.

PARSONS, J. FREDERICK, M.R.C.S., L.S.A., has been re-appointed Medical Officer of Health for the Frome (Somerset) Urban District.

PHILPOTT, ALBERT JOHN WILLIAM, M.B. Melb., has been appointed Medical Superintendent of the Yarra Bend Lunatic Asylum, Victoria, Australia, *pro tem.*

PINNIGER, F. B., M.B. Lond., has been appointed House Surgeon to the Hartlepools Hospital, Hartlepool.

SHEPPARD, A. LEWIN, M.B., B.S. Durh., has been appointed Casualty Officer to the Bristol Royal Infirmary.

SMITH, ROBERT SHINGLETON, M.D. Lond., F.R.C.P. Lond., has been appointed Honorary Consulting Physician to the Bristol Royal Infirmary.

SYMONDS, CHARTERS J., M.D., M.S. Lond., F.R.C.S. Eng., has been appointed to the Consulting Staff of the Bolingbroke Hospital, Wandsworth-common, S.W.

THOMSON, ST CLAIR, M.D., F.R.C.P., F.R.C.S., has been appointed Physician for Diseases of the Throat in King's College Hospital.

WEBSTER, E. E., M.B., Ch.B. Melb., has been appointed Health Officer and Medical Officer at Cairns, Visiting Surgeon to the Prison, and Health Officer at Cairns, Queensland, Australia.

WILLIAMS, LEONARD, M.D. Glasg., M.R.C.P. Lond., has been appointed Honorary Physician to the French Hospital and Dispensary, London.

WILLIAMS, PATRICK WATSON, M.D. Lond., M.R.C.S., has been appointed Honorary Physician to the Bristol Royal Infirmary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYR DISTRICT ASYLUM.—Junior Medical Officer, unmarried. Salary £120, with board, apartments, attendance, and washing.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary £100 per annum.

BIRMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL, Edmund-street.—House Surgeon. Salary at rate of £70 per annum.

BIRMINGHAM, RUBERY HILL ASYLUM.—Two Junior Assistant Medical Officers. Salary £150 per year, with board, lodging, and washing.

BRIGHTON THROAT AND EAR HOSPITAL, Church-street, Queen's-road.—Non-Resident House Surgeon for six months, renewable. Salary at rate of £75 per annum.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—House Physician, also Assistant House Surgeon, both for six months. Salary of former at rate of £50 per annum, and of latter £30 per annum, with board, residence, and washing.

CANCER HOSPITAL, Fulham-road, S.W.—Two Assistant Surgeons.

CARMARTHENSHIRE INFIRMARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with apartments, board, attendance, &c.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant for three months.

COULSDON, LONDON COUNTY ASYLUM, Cane-hill.—Junior Assistant Medical Officer. Salary £150 per annum, with board, apartments, and washing.

COUNTY OF LONDON, EPILEPTIC COLONY, Ewell.—Assistant Medical Officer. Salary £200 per annum, with board, apartments, and washing.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £40 per annum, with residence, board, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £25 per annum, with board and washing.

EDINBURGH, ROYAL VICTORIA HOSPITAL FOR CONSUMPTION, Craigleith.—Resident Physician for six months. Residence, board, and nominal honorarium.

ESSEX AND COLCHESTER HOSPITAL.—Honorary Physician.

GRAVESEND HOSPITAL.—House Surgeon. Salary £100 per annum, with board and residence.

GREENOCK INFIRMARY.—Assistant House Surgeon. Salary £40 per annum, with board and residence.

HOLLOWAY AND NORTH ISLINGTON DISPENSARY.—Medical Officer for Ball's Pond-road Branch Dispensary.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium of £25.

HOSPITAL FOR EPILEPSY AND PARALYSIS AND OTHER DISEASES OF THE NERVOUS SYSTEM, Maida-vale, W.—Ophthalmic Surgeon.

HUDDERSFIELD INFIRMARY.—Junior House Surgeon. Salary £40 per annum, with board, lodging, and washing.

HULL, VICTORIA HOSPITAL FOR SICK CHILDREN.—Lady House Surgeon. Salary £50 per annum, with board and laundry. Also Lady Assistant House Surgeon. Salary £40 per annum, with board and laundry.

LENZIE, GLASGOW DISTRICT ASYLUM, Woodilee.—Junior Assistant Medical Officer. Salary £125, with board, lodging, washing, &c.

LIVERPOOL WORKHOUSE, Brownlow-hill.—Assistant Medical Officer. Salary £100 per annum, with rations.

MANCHESTER CHILDREN'S HOSPITAL.—Junior Resident Medical Officer, unmarried, for six months. Salary at rate of £80 a year, with board and lodging.

MANCHESTER, CHORLTON-UPON-MEDLOCK DISPENSARY.—Resident House Surgeon, unmarried. Salary £120 per annum, with rooms and attendance.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

NORTHAMPTON GENERAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and washing.

QUEEN'S JUBILEE HOSPITAL, Earl's-court, S.W.—Honorary Physician and Honorary Anæsthetists. Also House Physician for six months, renewable. Honorarium at rate of £52 per annum, with board, residence, and laundry.

ROYAL HALIFAX INFIRMARY.—Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing.

ROYAL ORTHOPÆDIC HOSPITAL, 55, Bolsover-street, W.—House Surgeon and Registrar, unmarried. Salary £200 per annum, with rooms.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo-bridge-road, S.E.—Physician to Out-patients.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.—Honorary Physician.

SEAMEN'S HOSPITAL SOCIETY, Greenwich, S.E.—Dreadnought Hospital, Greenwich: House Physician, salary £65 per annum; House Surgeon, salary £65 per annum; Junior Resident Medical Officer, salary £40 per annum. At the Branch Hospital, Royal Victoria and Albert Docks: Senior House Surgeon, salary £100 per annum; House Surgeon, salary £50 per annum. With board, residence, and washing in each case.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

UNIVERSITY COLLEGE, LONDON.—Assistant Physician. Also Third Honorary Anæsthetist.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—Physician to Out-patients.

WELLS, SOMERSET AND BATH ASYLUM.—Senior Assistant Medical Officer. Salary £175, rising to £200 per annum. Also Second Assistant Medical Officer. Salary £130, rising to £150 per annum. Board, lodging, washing, and attendance in each case.

WEST HARTLEPOOL, CAMERON HOSPITAL.—House Surgeon. Salary £100 per annum, with board, rooms, and washing.

WESTON-SUPER-MARE HOSPITAL.—House Surgeon, unmarried. Salary £100per annum, with board and residence.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Assistant House Physician for six months. Honorarium at rate of £75 per annum, with board, lodging, and washing.

Births, Marriages, and Deaths.

BIRTHS.

DALY.—On March 13th, at Upper Clapton-road, N.E., the wife of Frederick J. P. Daly, M.R.C.S., L.R.C.P., of a daughter.

KENDALL.—On March 6th, at Chiddingfold, Surrey, the wife of Nicholas Fletcher Kendall, M.R.C.S. Eng., L.R.C.P. Lond., prematurely of a daughter, stillborn.

NASH.—On March 11th, at Clavering House, Bedford, the wife of W. Gifford Nash, F.R.C.S., of a daughter.

WALLACE.—On March 11th, at Battersea-rise, S.W., the wife of J. B. Wallace, M.B., of a daughter.

MARRIAGES.

CARVER—MACKAY.—On March 2nd, at St. John's Episcopal Church, Edinburgh, by the Rev. C. A. H. Going, B.A., Arthur Edmund Carver, M.D., Torquay, son of the late Edmund Carver, M.D., Cambridge, to Clare Patricia, daughter of the late Captain J. S. Mackay, 42nd Highlanders.

WALKER—GOADBY.—On March 9th, at St. Marylebone, by the Rev. W. Perowne Holmes, vicar of St. Peter's, Leicester, assisted by Canon Barker, Robert Alexander Walker, B.A., M.B. Cantab., third son of Thomas James Walker, M.D., J.P., of Peterborough, to Ethel Ernestine, youngest daughter of Major Goadby (Inspect. Ret. Army Schools), of Staidburn, Lancashire.

DEATHS.

ALLEN.—On March 7th, J. Allen, M.R.C.S., L.S.A., Grosvenor Lodge Ripley, Derby, aged 91 years.

SPENCE.—At Rio Janeiro, on March 10th, Basil Alexander Spence, M.B., Ch.B. Edin., eldest son of Robert Spence, M.B., Burntisland, aged 27.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE NEED OF DISTINCTIVE BOTTLES FOR POISONS.

A VERY sad case of accidental poisoning investigated at an inquest at Paddington on March 7th illustrated the need for enforcing the use for poisonous solutions of a bottle so distinctive in shape as to be incapable of being mistaken by anyone retaining his ordinary senses. The deceased, a young officer in the army, was suffering from blood poisoning and was being nursed by his wife without other assistance. He had taken one dose of a sleeping draught prescribed by his medical attendant and his wife, before lying down to rest on the sofa in his room, placed ready for him, as she thought, a second dose of the same medicine. There was, however, at the same time on the table a bottle containing carbolic acid and it was from this that the unfortunate lady filled her husband's glass without noticing her mistake. The patient awoke in the night and drank the carbolic acid with the result that although he roused his wife immediately and the medical man was summoned he died shortly after. A juror at the conclusion of the inquest, which resulted in a verdict of death from misadventure, aptly drew attention to the possibility of preventing such cases by suitable legislative provision. That errors frequently occur with a drug of so distinctive an odour as carbolic acid proves that the peculiar bottle or stopper to be adopted should be one which would practically compel the most tired patient or nurse to observe it and it need hardly be said that such contrivances exist, one at least being referred to in another column. Unless, however, their use is made compulsory they are not likely to become universal owing to the possible slight increase in expense, and if not used on all occasions they will fail to be employed precisely in those households from which professional nursing is absent.

A QUEER KIND OF DRAUGHT.

To the Editors of THE LANCET.

SIRS,—The note of Mr. I. George in your last issue recording the use of placental blood by the mother as a draught after childbirth is interesting. In these days of organo-therapeutics it must have occurred to many, on witnessing the devouring of the placenta and decidua by the female of one of the lower animals that possibly nature prompts the act because of some therapeutic virtue in the placental tissue and fluids. It would be interesting to know whether any such custom has been observed among savage races and whether it is commonly practised in the country from which Mr. George's patient came.

I am, Sirs, yours faithfully,

March 15th, 1905. RUSTICUS.

THE HISTORY AND ACTIVE CONSTITUENTS OF PAREIRA BRAVA.

IN suggesting an improved formula for the preparation of the liquid extract of pareira based on percolation with a mixture of alcohol, glycerine, and water, Professor H. G. Greenish gives some valuable details as to its constituents. Hanbury ("Science Papers," p. 382) mentions that the drug was first brought to Europe by the Portuguese in the seventeenth century and attracted general attention, being considered to possess extraordinary properties as a diuretic and lithontriptic. In Brazil it is still held in the highest esteem but much of its original reputation in this country has been lost, due probably in part to the more or less general substitution during the last 50 years of less active roots for the genuine pareira. At the present time the genuine drug itself, the dried root of *chondodendron tomentosum*, is procurable. The root made its first official appearance in 1836, chiefly at the suggestion of the late Sir Benjamin Brodie. It contains an unusual amount of fat and the alkaloid beberine to the extent of, perhaps, 4 to 5 per cent. The astringency of liquid preparations of pareira points to the probable presence of tannin. There is some danger in the present day when new remedies, mostly products of the chemical laboratory, are produced in such multitudes and highly extolled during their usually brief life that remedial agents of vegetable origin which have stood the test of time should be forgotten, owing mainly to the fact that there is nobody to call attention to their virtues as in the case of the newer remedies. In the present case it is possible that had the genuine drug been procurable during the last century it would not so readily have fallen into disuse. To show the high opinion originally held of it the following brief extract from Hanbury's "Science Papers" may prove of interest. In 1710 the French Academy requested Geoffrey, professor of medicine and pharmacy in the College of France, to investigate the virtues of pareira and among physicians who tried it was Helvetius who, though a young man, was consulted by Louis XIV. in his last days. Helvetius gave strong testimony in its favour. Both Geoffrey and Helvetius were correspondents of Sir Hans Sloane, that diligent promoter of science whose immense collection gave origin to the British Museum. Among the Sloane MSS. was found a letter from Helvetius to an ambassador at the court of George I., a portion of which is extremely interesting: "I am extreamly pleased that you have apply'd yorself to me for my advice about the use of *Pareira Brava* ..... because I can give you a very good account of it haveing been one of the first that introduced it in France. I have made abundance of lucky experiments about it ..... wherefore I assure you, you can do nothing better than to make tryall of it. ..... 'Tis called in Brazil the Universal Medicine and made use of there in all kinds of distempers. A Capuchin monk who came from thence told me he could not give it a greater character than by assuring me that in all their voyages they carried the gospell in one pockett and the *Pareira Brava* in another....."

BEARING REINS.

WE have received the report for the year 1904 of the Anti-Bearing Rein Association which has for its object the doing away with the gag bearing rein. We are aware that in some instances a bearing rein may be necessary, at all events for town work, but we consider that for cart horses it is not only unnecessary but harmful. The appliance is, we think, absolutely unknown in the case of omnibus horses and it is certainly more rarely to be seen than formerly upon horses used for other heavy loads. The great offenders are, as a rule, the upper classes and we frequently notice carriages standing in the streets, the horses of which are reined up so tightly as to be a disgrace. Even if a coachman is incapable of driving them without a bearing rein there is no reason why he should not let them "have their heads" while waiting. The gag bearing rein is false from a mechanical point of view and no lover of the horse can like to see the poor animal with its head kept in a ridiculously artificial position.

THE CASE OF DR. A. D. GRIFFITHS.

To the Editors of THE LANCET.

SIRS,—Will you kindly allow me to acknowledge the receipt of the following additional contributions?

I am, Sirs, yours faithfully,

ALEXR. P. FIDDIAN, M.B. Lond.,
Treasurer.

23, The Walk, Cardiff, March 14th, 1905.

	£	s.	d.
Amount previously acknowledged	66	0	0
Dr. S. Cromwell Jones ...	0	10	6
Mr. W. F. Brook, sen. ...	0	10	6
Mr. J. Charles Edwards...	0	10	6
Mr. Eleazar Davis	0	10	6
Dr. E. J. Trevor Jones ...	0	10	6
Mr. Egbert Williams ...	1	1	0
Mr. J. Walters	0	5	0

CONCISENESS AND CONSUMPTION.

THEREFORE, since brevity is the soul of wit, as Polonius reminded us, the Great Eastern Railway Company has displayed some soul which causes us to doubt the saw that companies have no souls. The notices exhorting and commanding passengers not to spit in their railway carriages have during the last two or three years constituted a progressive study in brevity. In December, 1902, a notice was printed in almost illegible red ink, placed in a neat frame and hung up in every compartment of every carriage, reading as follows:—

> "Great Eastern Railway Company. Prevention of Consumption. To aid in the prevention of consumption, and in their own interests, all persons are earnestly requested not to spit on the floor of any vehicle, railway station, or other public resort. J. F. S. Gooday, General Manager, December, 1902."

Subsequently in the newer carriages another notice, consisting of a thin metal plate with a white ground and large dark blue letters, appeared. Two copies of this notice were placed in every compartment. This notice, which measured 8½ × 4½ inches and was fastened up with a dozen tacks, said: "Prevention of Consumption. Please do not spit." This was an exhortation. Since then another metal notice has appeared stating: "Prevention of Consumption. Do not spit." This is a command. This brevity is a contrast to a notice placed inside some omnibuses in London as follows:—

> "London County Council. The London County Council hereby gives notice that, in pursuance of its powers under the Municipal Corporation Act, 1882, and the Local Government Act, 1888, it has made the following by-law for the good rule and government of the county of London and that the said by-law is now in force. *Spitting.*—No person shall spit on the floor, side, or wall of any public carriage, or of any public hall, public waiting-room, or place of public entertainment, whether admission thereto be obtained upon payment or not. Any person who shall offend against this by-law shall be liable for each offence to a fine not exceeding 40*s*. G. L. Gomme, clerk of the council, Spring-gardens, S.W., July 10th, 1903."

This notice, when we saw it, was stuck on the roof inside the omnibus in such a way that in order to read it it would have been necessary to lie along the seat, so that it has probably not had much practical effect.

TUBERCULOSIS IN MEAT NOT DETECTED AT THE CENTRAL MEAT MARKET.

IN a recent case at the Marlborough-street police-court a sanitary inspector gave evidence that in passing the shop of the defendants, a firm of provision dealers in Soho, he noticed that one of several pigs' heads exposed for sale was badly affected with tuberculosis. The defence raised was that the business carried on was of a high-class and respectable character and that the tuberculosis in the pig, the carcass of which had been disposed of already but of which the head remained, was of so slight a character that it had escaped the notice of the inspector at the Central Meat Market, of the dealer, of the buyer,

and of the defendants themselves. How the evidence which was called in support of this was reconciled with the obviousness of the disease to the passing inspector does not appear from the report before us. Mr. Kennedy said that great want of care had been shown and that as was usual in such cases, whatever examination there had been at the Central Meat Market or elsewhere had proved perfectly useless. Dr. F. J. Allan, medical officer of health of the City of Westminster, had stated in his evidence that if in the process of cooking the meat was exposed to a sufficiently high temperature the danger arising from eating tuberculous meat might be removed but that the products of the disease would remain. The argument that such meat is wholesome food is a common line for the defence to take, as naturally the medical officer of health in many cases where infected foodstuffs are concerned does not deny that steps may be taken to render them more or less innocuous. Mr. Kennedy, however, refused to adopt the suggestion. He said in plain terms that the sale of such unfit food as the pig's head in question was a very great danger to the public and that he refused to believe in tuberculous meat being made good to eat by cooking. He imposed a fine of £20 with £5 costs.

A "LOCK-AND-KEY" POISON BOTTLE.

THE reports in the press recently regarding a case of accidental poisoning, in which carbolic acid was administered in place of medicine, have led Messrs. Thomas Christy and Co. to introduce a "lock-and-key" bottle which they consider will in the future prevent mistakes of this nature occurring. They propose to supply this "lock-and-key" bottle containing the usual quality of carbolic acid used for disinfecting purposes at the same price as commonly charged to the public in any ordinary bottle, and also to supply empty poison bottles with a nickel-plated patent automatic lock and key for locking up all poisons.

A SLANDER CASE.

AT the Durham winter assizes, before the Hon. Mr. Justice Bigham, the action brought by Dr. Harold E. Gamlen of West Hartlepool against Dr. John Hedley of Middlesbrough for slander was settled upon terms, the defendant having agreed to pay £50 damages and costs. Mr. Ivor Johnson, who appeared for the defence, said that his client made the statement complained of under a misunderstanding as to the facts of a case concerning the use of Roentgen rays in a case of phthisis under the treatment of the plaintiff and desired to withdraw the whole of the statements made and further to express his regret for having made them. Dr. Hedley wished this statement to be made in order that there should be no mistake about the withdrawal.

MORTALITY AT SEA.

AN official American report on mortality at sea suggests that travelling by ships is much more safe than travelling on railroads. The annual average of lives lost during the last 25 years is 1613, while in 1903 the total number of persons lost was 624, of whom 589 were sailors and 25 were passengers. Of the lost two had been sailing safely for 60 years, five for more than 40 years, and 21 for over 20 years. There were 5660 lives saved along the British coasts, 235 by the rocket apparatus, 489 by lifeboats, 205 were saved by coastguards, 578 were rescued by passing ships, and 1100 reached safety in the boats of their own ships.

DISINFECTION OF CONFESSIONALS.

THE Board of Health of Mexico is composed of thoroughly trained sanitarians. Recently that board recommended to the Government the importance of requiring the disinfection of confessionals as a measure for the prevention of the spread of contagious diseases. Acting on this recommendation, the Government has issued an order for the disinfection of confessionals in all the churches of that capital city daily. Priests in charge of churches who neglect the order will be fined and imprisoned. A similar order has been issued in the city of Guadalajaro and it is the intention to put it into effect throughout the republic.

"THE OPEN WINDOW."

ON March 3rd Dr. Harold Scurfield, medical officer of health of Sheffield, delivered a lecture at University College Hall in that city on the subject of the Open Window. After a recapitulation of the manifold dangers to health caused by the rebreathing of air and a demonstration of the necessity of frequently renewing the atmosphere of crowded rooms, he said that those who had to spend the greater part of the day indoors could compensate for this and obtain a continuous supply of fresh air at night by keeping the bedroom window open. He advocated letting a baby sleep in his cot with the window wide open night and day all the year round, provided that his body was kept warm. He had never heard of anyone adopting the open bedroom window and giving it up; the practice invariably gave a greater sense of physical fitness in the morning and a much lessened liability to catch cold.

We presume that there is no substantial difference of opinion within the medical profession as to the desirability of free ventilation, but in strange contrast with the foregoing we have received a letter dated from Brighton on March 5th inquiring "whether one needs to inhale oxygen during sleep." Our correspondent, whose name does not appear in the Medical Directory or Register, and who can hardly be either a medical man or a chemist, then proceeds to argue that if oxygen is not necessary during sleep "it is a good reason not to risk taking cold by open windows."

PAIN AFTER EXTRACTION OF TEETH.

To the Editors of THE LANCET.

SIRS,—I noticed in THE LANCET of March 11th, p. 686, a reply to "R. H." regarding pain after extraction. Several cases quite recently have come under my notice for treatment where continuous gumboils have been present previous to extraction of teeth, pain after which is bound to follow. It appears to last usually for about six days if not treated. The treatment which I find very effectual is to syringe the socket well out with hydrogen peroxide; then dry and apply equal parts of tincture of aconite, iodine, and belladonna, both in the socket and around the gums in the immediate neighbourhood. Relief is obtained within 24 hours.—I am, Sirs, yours faithfully,

Sherborne, Dorset, March 13th, 1905. F. VOSPER, L.D.S.

LIQUID POISONS.

Sir Thomas Dewar, M.P., is credited with the intention of introducing into the House of Commons a Bill rendering it illegal to sell liquid poisons in other than specially constructed bottles. It will be interesting to see what substances the introducer of the Bill defines as liquid poisons. Nearly all the alcohols are poisons and some are very poisonous and before now the drinking of a bottle of whisky has brought about death very rapidly.

J. W. E.—Income-tax Repayment Agency, 6, Chichester-road, W.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (22nd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.) Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.).

THURSDAY (23rd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Royal Ear (10 A.M.).

SATURDAY (25th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (21st).—PATHOLOGICAL SOCIETY OF LONDON (Royal Army Medical College, Examination Hall).—5 P.M. Major W. B. Leishman: Some Experiments in connexion with Stimulins.—Mr. L. S. Dudgeon: Enteric Bacillus from Bone Abscess.—Mr. C. F. Seious: Physical Method of estimating Fibrin.—Major W. B. Leishman: Demonstration of Cultural Forms of the Leishman Body.

CHELSEA CLINICAL SOCIETY (Chelsea Dispensary, Manor-street, King's-road, S.W.).—8.30 P.M. Annual Clinical Debate on Chronic Constipation and its Medical and Surgical Treatment. Dr. W. Collier, Dr. F. J. Smith, Dr. H. C. Thomson, and Dr. L. Williams will take part in the debate.

WEDNESDAY (22nd).—HUNTERIAN SOCIETY (London Institution, Finsbury-circus, E.C.).—8.30 P.M. Discussion upon Influenza (opened by Prof. Allbutt). Contribution by Dr. F. Parsons: Causes of Influenza. The Discussion will be open to all members of the medical profession.

THURSDAY (23rd).—CHILDHOOD SOCIETY AND THE BRITISH CHILD-STUDY ASSOCIATION (Parkes Museum, Margaret-street, W.).—5 P.M. Lecture:—Miss Lawrence: Method of Training Froebelian Teachers. (Arranged by the Childhood Society.)

FRIDAY (24th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Papers:—Mr. D. Drew: Three Cases of Stenosis of the Ureter.—Dr. N. Dalton and Mr. A. D. Reid: Examination of the Stomach by Aid of the X Rays and a Tube filled with Subnitrate of Bismuth.—Mr. A. B. Barker: Two Cases illustrating the Condition of the Small Intestine some years after Extensive Enterectomies.—Sir Dyce Duckworth: A Case of Streptococcal Pachymeningitis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (20th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Baldwin: Practical Surgery.
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. R. G. Little: Clinique. (Skin.) 5.15 P.M. Prof. W. Cheyne: Tubercular Diseases of Joints, their Diagnosis and Treatment.

TUESDAY (21st).—ROYAL COLLEGE OF PHYSICIANS OF LONDON (Pall Mall East).—5 P.M. Dr. W. C. Bosanquet: Some Considerations on the Nature of Diabetes Mellitus (Goulstonian Lecture.)
POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Paget: Surgical Cases.
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. L. Williams: Clinique. (Medical.) 5.15 P.M. Dr. P. Stewart: Reflexes.
NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Lecture:—Mr. W. Edmunds: Intestinal Obstruction.

WEDNESDAY (22nd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. R. J. Reece: Small-pox and Vaccination (with lantern slides).
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Berry: Clinique. (Surgical.) 5.15 P.M. Dr. J. B. Squire: Murmurs in the Chest not due to Heart Disease.
CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M. Demonstration: Mr. S. Low: Oro- and Laryngo-Pharynx.
HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Habershon: Mitral Stenosis.

THURSDAY (23rd).—ROYAL COLLEGE OF PHYSICIANS OF LONDON (Pall Mall East).—5 P.M. Dr. W. C. Bosanquet: Some Considerations on the Nature of Diabetes Mellitus. (Goulstonian Lecture.)
POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. R. J. Reece: Small-pox and Vaccination (with lantern slides).
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Mr. J. Sherren: Some Surgical Observations on Referred and Reflected Pain.
MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Lecture:—Mr. J. Berry: The Surgical Treatment of Empyema. (Post-Graduate Course.)
SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Mr. Handley: Appendicitis in Women.
THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Lecture:—Dr. Hutchison: Constipation and its Consequences in Infancy and Childhood.
NATIONAL ASSOCIATION FOR THE PREVENTION OF CONSUMPTION (20, Hanover-square, W.).—4.30 P.M. Annual General Meeting.

FRIDAY (24th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.) 5 P.M. Dr. R. J. Reece: Small-pox and Vaccination (with lantern slides).
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. H. Tilley: Clinique. (Throat.)
MEDICAL CONFERENCE ON THE TEACHING OF HYGIENE AND TEMPERANCE (Examination Hall, Victoria Embankment, W.C.).—5 P.M. Addresses by Sir Victor Horsley, Dr. R. Jones, Sir Thomas Barlow, and Mr. McAdam Eccles.
NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Lecture-Demonstration:—Mr. de Prenderville: Anæsthetics.

SATURDAY (25th).—THE ROYAL SANITARY INSTITUTE (Parkes Museum, Margaret-street, W.).—11.30 A.M. Discussion on Municipal Milk Depôts and Milk Sterilisation (opened by Dr. G. F. McCleary). Dr. J. Groves, Prof. H. R. Kenwood, Dr. H. C. Pattin, Dr. H. M. Richards, Dr. J. Robertson, Dr. E. C. Seaton, Dr. E. Walford, and Dr. W. G. Willoughby will take part in the discussion. In the afternoon visits will be made to the Battersea Municipal Milk Depôt, and to the Disinfecting Station, Public Mortuary, Coroner's Court, and Shelter.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1904, which was completed with the issue of Dec. 31st, and the Title-page to the Volume, were given in THE LANCET of Jan. 7th.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1904 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Mar. 16th, 1905.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Mar. 10	29·52	S.W.	0·07	85	51	37	37	40	Overcast
,, 11	29·16	S.W.	0·28	60	52	40	50	51	Showery
,, 12	29·01	S.W.	0·09	94	51	45	45	47	Cloudy
,, 13	29·39	S.W.	0·21	98	55	42	44	45	Fine
,, 14	29·18	S.W.	0·26	93	54	45	47	48	Overcast
,, 15	29·01	S.W.	0·25	69	50	42	42	44	Cloudy
,, 16	29·22	S.W.	0·65	86	52	41	45	47	Cloudy

During the week marked copies of the following newspapers have been received:—*Liverpool Courier, Westminster Gazette, Engineer, Richmond Herald, Glasgow Herald, Freeman's Journal, The Scotsman, Highland News, Evening News, Morning Leader, Sanitary Record, Local Government Chronicle, Mining Journal, Bath Weekly Argus, Glasgow Evening Times, Surrey Advertiser, Sussex Daily News, Dublin Times, Birmingham Post, Notts Guardian, Dublin Express, Bradford Observer, Hereford Mercury, Manchester Guardian, Southport Visitor, &c.*

Communications, Letters, &c., have been received from—

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